

# EVERYMAN'S ENCYCLOPAEDIA

IN TWELVE VOLUMES  
VOLUME SEVEN



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# ABBREVIATIONS

The titles of subjects, which are printed first in bold type, have been abbreviated within each article to the initial letter or letters.

ac., acre(s).  
**agric.**, agricultural.  
**ambas.**, ambassador(s).  
**Amer.**, American.  
**anct.**, ancient.  
**ann.**, annual.  
**arron.**, arrondissement.  
**A.-S.**, Anglo-Saxon.  
**A.V.**, Authorised Version.  
**b.**, born.  
**Biog. Dic.**, Biographical Dictionary.  
**bor.**, borough.  
**bp.**, birthplace.  
**Brit.**, British.  
**c.**, about.  
**C.**, Centigrade.  
**cap.**, capital.  
**cent.**, century (7th cent.).  
**chem.**, chemistry.  
**co.**, county.  
**com.**, commune.  
**cub. ft.**, cubic feet.  
**d.**, died.  
**Dan.**, Danish.  
**dept.**, department.  
**dimin.**, diminutive.  
**dist.**, district.  
**div.**, division.  
**E.**, east; eastern.  
**eccles.**, ecclesiastical.  
**ed.**, edition; edited.  
**educ.**, educated.  
**e.g.**, for example.  
**Ency. Brit.**, *Encyclopaedia Britannica*.  
**Eng.**, English.  
**estab.**, established; establishment.  
**fl.**, flourished.  
**Flem.**, Flemish.  
**fort. tn.**, fortified town.  
**Fr.**, French.  
**ft.**, feet.  
**Ger.**, German.  
**Gk.**, Greek.  
**gov.**, government.  
**Heb.**, Hebrew.  
**hist.**, history.  
**horticult.**, horticultural.  
**h.p.**, horse-power.  
**H.Q.**, headquarters.  
**hr(s)**, hour(s).  
**in.**, inch(es).  
**inhab.**, inhabitant(s).  
**is.**, island(s).  
**It.**, Italian.  
**Jap.**, Japanese.  
**jour.**, journal.  
**Lat.**, Latin.

**lat.**, latitude.  
**lb.**, pound(s).  
**l. b.**, left bank.  
**long.**, longitude.  
**m.**, mile(s).  
**manuf.**, manufacture(d).  
**M.E.**, Middle English.  
**min.**, minute(s).  
**Mod. E.**, Modern English.  
**m.p.h.**, miles per hour.  
**mrkt tn.**, market town.  
**MS., MSS.**, manuscript(s).  
**mt. mts.**, mount, mountain(s).  
**N.**, north; northern.  
**N.T.**, New Testament.  
**O.E.**, Old English.  
**O.F.**, Old French.  
**O.T.**, Old Testament.  
**oz.**, ounce(s).  
**par.**, parish.  
**parl.**, parliamentary.  
**pop.**, population.  
**prin.**, principal.  
**prof.**, professor.  
**prov.**, province; provincial.  
**pub.**, published; publication.  
**R. riv.**, river.  
**R.A.F.**, ~~the~~  
**r. b.**, right  
**rep.**, republic.  
**Rep. of Ireland**, ~~the~~  
**R.N.**, Royal Navy.  
**Rom.**, Roman.  
**r.p.m.**, revolutions per minute.  
**R.V.**, Revised Version.  
**S.**, south; southern.  
**sec.**, second(s).  
**sev.**, several.  
**Sp.**, Spanish.  
**sp. gr.**, specific gravity.  
**sq. m.**, square miles.  
**tamp.**, temperature.  
**ter.**, territory.  
**tn.**, town.  
**trans.**, translated; translation.  
**trib.**, tributary.  
**U.K.**, United Kingdom.  
**U.N.**, United Nations.  
**univ.**, university.  
**U.N.O.**, United Nations Organisation.  
**urb.**, urban.  
**U.S.A.**, United States of America.  
**vil.**, village.  
**vol.**, volume.  
**W.**, west; western.  
**Wm.**, William.  
**yd(s)**, yard(s).

prin. change has been the democratic one of granting relief in respect of 'earned income' and imposing a supertax on incomes over £2000.

The provisions relating to the rate, collection, and assessment of the I. T. immediately before the changes introduced by the Finance Act of 1909 are of interest. Those relating to administration and incidence have mostly undergone no alteration. There were 5 schedules according to the sources of income. Schedule A formed the charge on the owners of land and houses; B on the benefit arising out of the use or occupation of land, measured by a proportion of the rent or ann. value; C related to income from any public revenue, imperial, colonial, or foreign; D, income from professions, trades, and other occupations, together with all incomes not included in any of the other schedules; and E was a charge on persons employed by the state or engaged in any other office of profit in a public corporation or company. Incomes below a stated figure were totally exempt; real property exempt included public parks and recreation grounds, prisons, public offices, or other crown property, and canals, mines, quarries, etc., from which no income or benefit is derived beyond the general profits of the concern to which they belong. Other exemptions were incomes from property held on trust for charitable purposes in so far as applied to such purposes; and the stock dividends or other income of friendly societies, and of industrial and provident societies (see FRIENDLY SOCIETIES). Incomes not exceeding £700 were allowed an abatement. An abatement for premiums for life assurance was also allowed. The relief to 'earned' income was a reduction of 3d. in the pound upon the rate paid on unearned incomes. The general rate was 1s. in the pound, and 9d. in the case of earned incomes not exceeding £2000. The tax was granted for a year only, but annually renewed. The assessment and collection of the tax were entrusted to local commissioners, known as general or dist. commissioners, appointed by the Land Tax Commissioners out of their own body, and not subject to the control of the gov. Their duties consist in signing and allowing I. T. assessments, and hearing appeals. They also appoint local officers for I. T. purposes. There are also special salaried commissioners appointed by the Crown to make assessments under Schedule C, and, where the taxpayer elects, under Schedule D; also to assess utility companies and dividends out of foreign and colonial stocks, funds, or other revenues. Special commissioners may hear appeals from their own assessments or those of local commissioners. The assessments of the salaries under Schedule E are made by the commissioners for public offices. The duty of a collector is to obtain payment of the I. T. from the persons on whom it is imposed, and for this purpose he is supplied with warrants. Most of these provisions are re-enacted annually, and to ensure collection in due time these

provisions and all enactments relating to I. T. not specifically repealed have full force as soon as the tax is granted in any Finance Act (see Section 18 (2) of the Finance Act, 1907). A Select Committee was appointed in 1906 to inquire into the graduation of the I. T., and recommended an extension of the existing system of abatements, even up to incomes of £1000 or more. They also recommended graduation by a supertax, and a differentiation between earned and unearned incomes, to be limited to incomes not exceeding £3000 a year. Some of these recommendations were adopted in the Finance Act, 1909-10.

The Income Tax Act of 1918 consolidated all legislation extending over some 70 years. The Royal Commission of 1920 made important recommendations on differentiation, graduation, fraud, evasion, and administration which were to some extent implemented in the Finance Acts of 1920-39. An I. T. codification committee was set up in 1936. The Second World War saw important changes, such as the assessment of Excess Rents (Finance Act 1940), the assessment of farmers under Schedule 'D', and the implementation of the Pay-As-You-Earn system for Schedule E taxpayers, by which current tax was deducted from current wages and salaries, in 1943. The standard rate of tax reached 10s. in 1941-2; the surtax on incomes of over £20,000 was 9s. 6d. A unique provision, whereby additional tax attributable to the cut in personal and earned income allowances was to be repaid after the war, known as Post-war Credits, was also introduced. Tax Reserve certificates, introduced in 1941, could be purchased and surrendered in payment of tax. Interest on these certificates is exempt from all taxes. The Income Tax Act, 1945, was passed to implement a gov. promise that the capital cost of new buildings and plant would be allowed against profits, and it completely revised the granting of allowances on wasting assets.

After the war, the standard rate was reduced to 9s., but increased owing to the rearmament programme in 1951-2 to 9s. 6d. Legislation was introduced in 1948 to combat the tax-free expenses allowances which had been the source of large-scale tax avoidance. The Special Contribution imposed by the Finance Act, 1948, was not strictly a tax on income, but surtax principles applied, and in effect it was a tax on investment income though it often had of necessity to be paid from capital. The P.A.Y.E. system, continued after the war, imposed a great deal of the administration and collection of Schedule E tax on employers.

A further codification Act was passed in 1952 and all tax legislation up to that date was embodied in the Income Tax Act, 1952. The Finance Act, 1952, implemented some of the recommendations of the first Tucker Committee on Trading Profits. In the Finance Act, 1954, a new capital allowance, the Investment Allowance, was introduced, but withdrawn in

## Income

1956. The Finance Act, 1956, included provisions for carrying into effect some of the recommendations of the second Tucker Committee with regard to retirement benefits for the self-employed. A Royal Commission on the Taxation of Profits and Income issued its final report in June 1955. Among the recommendations of this and previous interim reports were: a graduated child allowance according to income, increased earned income relief, Schedule D assessments of companies to be based on current year's profits, a flat rate of Profits Tax, Capital Allowances for commercial buildings, revision of Schedule A, and the tightening of the law against tax evasion. A Minority Report included a recommendation for a capital gains tax.

The I. T. year is from 6 April to the following 5 April. The standard rate of I. T. between 1842-3 and 1854-5 was 7d.; in 1855-6, 1s. 2d.; 1856-8, 1s. 4d.; it was then below 1s. until 1900-1, when it rose to 1s.; in 1915-16 it was 3s.; 1916-17 and 1917-18 it rose to 5s., and thereafter was as follows: 1918-19 to 1921-2, 6s.; and ranged between 4s. in 1925-6 and 7s. in 1939-40; 8s. 6d. in 1940-1; 10s. in 1941-1942 to 1944-6; 9s. in 1946-7 to 1950-1; 9s. 6d. in 1951-2 to 1952-3; 9s. in 1953-4 to 1954-5; 8s. 6d. in 1955-6 to 1956-7.

The surtax replaced the supertax, which was levied up to and including the supertax year 1928-9. The surtax is in effect a deferred instalment of I. T. payable on 1 Jan. after the end of the I. T. year. Surtax has been at the following rates since 1951-2: in respect of the first £2000, nil; tax chargeable on every £ of income:

£	£	
2001 to 2500	.	2s. 0d.
2501 to 3000	.	2s. 6d.
3001 to 4000	.	3s. 6d.
4001 to 5000	.	4s. 6d.
5001 to 6000	.	5s. 6d.
6001 to 8000	.	6s. 6d.
8001 to 10,000	.	7s. 6d.
10,001 to 12,000	.	8s. 6d.
12,001 to 15,000	.	9s. 6d.
15,001 and over	.	10s. 0d.

In 1956-7 earned income and personal allowances and reliefs could be claimed by individuals and partnerships against total income before arriving at the taxable income as follows: (1) earned income relief of 2/9ths, subject to a maximum of £450; (2) personal allowance of £240 (£140 single person); (3) child allowance of £100, subject to child's income not exceeding £85 per annum. There are also housekeeper and dependent relative reliefs. Age relief of 2/9ths of all income (subject to limit of £600) can be claimed where the taxpayer (or wife) is 65 or more. There are also reliefs for life assurance premiums, superannuation contributions, and National Insurance. The first £60 of taxable income is taxed at 2s. 3d., the next £150 at 4s. 9d., the next £150 at 6s. 9d., and thereafter at the standard rate of 8s. 6d.

Tax is deducted at standard rate from

## Incorporeal

all dividends and interest of an ann. nature and has to be accounted for by the payer. Maintenance relief can be claimed against the Schedule A assessments if the repairs expenditure exceeds the statutory allowance. Agreements for the avoidance of double tax on income and profits have been concluded with a large number of countries; where no agreement exists a credit is allowed against the U.K. tax. Post-war Credits amounted to £800 million by 1945-6. Credits are repaid to taxpayers over 65. In 1954-5 the repayments were £24 million.

The yield of the I. T. and surtax since before the First World War has been:

Year	Yield (£m.)
1911-12	41
1938-9	336
1945-6	1441
1950-1	1535
1955-6	2082

In other countries of Europe, I. T. forms a ready but unpopular means of raising revenue, and in general the same broad principles are laid down as in England, viz. graduated systems with an initial rebate and allowances for families.

The endeavour to impose an I. T. in the U.S.A. in the past met with fluctuating success. As in England, it began as a war tax when it was imposed by the Federal Gov., which during the Civil war levied a tax of 3 per cent on all incomes over \$800. It was not abrogated till 1872, but when revived in 1895 the courts declared it to be unconstitutional, with the result that the constitution had to be amended. On 25 Feb. 1913, the XVth Amendment of the U.S.A. constitution was declared in force: it states that Congress shall have power to levy and collect taxes on incomes from whatever source derived without apportionment among the sev. states and without regard to any census or enumeration. This amendment was ratified by all states except Connecticut, Florida, Pennsylvania, Rhode Is., Utah, and Virginia. See *The Annual Reports of the Commissioners of Inland Revenue* and E. E. Spicer and E. C. Pegler, *Income Tax*, 4 vols. (2nd ed.), 1952.

Incommensurable, see COMMENSURABLE.

Incorporeal Chattels and Hereditaments.

Incorporeal chattels are the rights or interests incident to personal property, e.g. copyrights, patent rights, annuities, debts, cash at a bank, gov. stocks, debentures of companies. Such property is said to be incorporeal because it has only a notional existence as opposed to corporeal chattels, or those having a physical existence. Incorporeal hereditaments are rights over or in connection with the enjoyment of land, as opposed to the right of immediate or future possession of the land itself, e.g. rights of way, advowsons (right of presentation to a vacant living), rents, commonable rights (see COMMON, RIGHT OF). Formerly the term incorporeal hereditament included future estates or interests in land or the right to the future possession by way of reversion

or remainder (*see* ESTATE; GRANT); such incorporeal hereditaments were said to 'lie in grant' (by deed) while corporeal lay in livery, i.e. transfer of possession was necessary effectually to pass them to another. As both incorporeal chattels and hereditaments now pass by deed, the distinction between them has no practical importance.

**Increment Value Duty** was introduced by Lloyd George as Chancellor of the Exchequer in the famous budget of 1909. The duty was £1 for every £5 of 'increment value' accruing to land on: (1) Sale or lease (for a period exceeding 14 years). (2) Succession (upon death of the owner). (3) Valuation to be made every fifteenth year in respect of land held by permanent corporations.

Increment value was the amount by which the site value exceeded the original site value.

The commissioners of Inland Revenue were made responsible for valuing all land in the U.K., having regard to (1) site value and (2) total value. 'Site value' was defined as the value of the bare land without buildings, etc. (these latter being included in the total value). and 'original site value' as the value of such land on 30 April 1909. Agric. land was exempt from the duty so long as its value did not exceed the market value for agric. purposes. The duty was a failure. Valuation was a long, costly, and inquisitive process and the return from the tax was small. The duty was abolished in 1920.

**Incubation and incubators** (from Lat. *incubare*, to brood; *incubere*, to lie on or within). I. is strictly the action of a bird in sitting on her eggs to hatch them, but the term is also used of the development of the germs of disease within the body, and especially in connection with the artificial machines (incubators) employed in hatching eggs artificially, or for similar purposes in bacteriological laboratories. In nature, I. is often the task of the female only, but sometimes the male takes his share, as in the case of ostriches and most passerine and running birds. In other cases, again, the eggs are laid among rotting vegetation, the high temp. thus afforded making brooding unnecessary. The period of I. varies considerably in length, from 3 weeks with ravens and common fowls to 6 or 7 with swans and ostriches, and 2 weeks or less with swallows. The habit of brooding over their young is not infrequently found in other creatures as well as in birds, for example in earwigs, centipedes (*Scolopendra*), and pythons.

Artificial I. was known from the earliest times, and practised among the Chinese and Egyptians by means of huge egg ovens, types of which are in use by primitive people to the present day. Commercial manuf. of incubators began about 1900 and the only machine then made was a hot-water type. This incubator consisted of a double-walled cabinet with insulation or dead air space between the walls. The interior of the incubator was heated with a hot-water tank placed in the

top of the cabinet, and this water was passed from an outside boiler which, in turn, was heated by an oil lamp.

The largest incubator of this type held approximately 300 hen eggs. Regulation of the temp. was obtained by a thermostatic capsule filled with either or methylated spirit or a mixture of both. This capsule expanded when heated and the action of the expansion was used to work either a damper or slide to control entry of the heat into the machine or to allow excess hot air to escape from the egg compartment. In order to meet the demands of large poultry-keepers who wished to incubate hundreds of eggs at a time, this type of machine was later developed by placing sev. of these compartments in long rows and heating the whole with hot-water pipes running from an anthracite boiler. Each compartment could be operated independently, but the chief disadvantage of this type of machine was the amount of space necessary for easy operation. This, together with the amount of labour involved, gradually led to them becoming obsolete.

A few years after the invention of the hot-water incubator, a new type was developed which proved a great improvement in many ways. This was the hot-air machine. In this type air is heated in a heating compartment and passed through the machine in metal pipes. The heating units can be arranged to work in conjunction with oil lamps, electric heaters, or gas burners. This type of machine usually proved to be more sensitive than the hot-water model and easier to work. These incubators are used extensively by pedigree breeders and all poultry farmers who prefer to hatch their eggs in small units.

With the expansion of the poultry industry and the setting up of large commercial hatcheries, the need arose for large incubators, holding sev. thousands of eggs, that would take up little space and be practically automatic in operation. This need was met by the invention of the Cabinet incubator in the U.S.A. It was later developed and improved in Great Britain, and to-day the Cabinet incubator is a precision-built appliance that is practically foolproof.

Usually it consists of a double-walled chamber built of selected timber and divided into 2 compartments. In the setting compartment the trays are so fitted that they can be tilted by some outside medium. In the hatching compartment they are placed at the same level, as no turning of eggs is necessary after the nineteenth day. These compartments are heated by electric elements or hot-water pipes or a combination of both. The air is circulated by means of a fan which ensures even temp. through the whole of the compartment. This fan can be driven by small electric motors or petrol engines.

The largest Cabinet incubators accommodate up to 50,000 eggs in a space little more than 1000 cub. ft. The temp. and humidity are automatically controlled

## Incubation

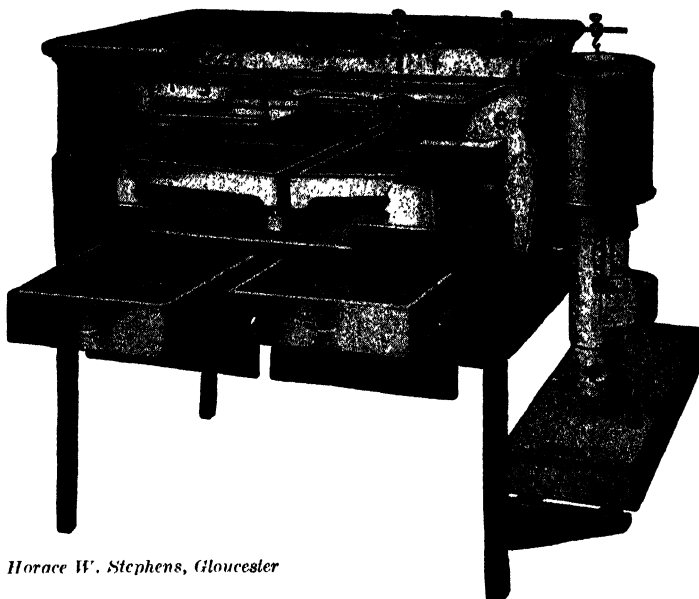
and, when required, the eggs can be automatically turned at prescribed intervals. Alarm and safety devices are fitted to ensure freedom from breakdown with consequent loss of eggs. Those incubators are now used extensively in all parts of the world.

Artificial I. has the following advantages over the natural process: (1) a much larger number of eggs are able to be successfully

## Incumbent

apparatus for keeping the air moist. There are various forms, some heated by warm water, others by warm air. They are mostly square or rectangular in shape, but some bacteriologists prefer cylindrical forms.

Human incubators have also been designed for rearing children too weak to survive under ordinary conditions. The first was that of Dr Tarnier (1880), used in



*Horace W. Stephens, Gloucester*

### EGG INCUBATOR

1, Substantial depth of packing, preventing loss of heat; 2, pipe which conducts fresh warm air into the interior of incubator; 3, heat radiator and diffuser; 4, canvas top diaphragm over the egg chamber; this diaphragm is removable; 5, capsule regulator for maintaining an even temperature; 6, thick packing, which makes up the sides, back, and front of 'Gloverum' incubator; 7, drawers into which newly hatched chicks fall.

hatched; (2) the chickens are free from vermin; (3) they are free from the danger of being trodden to death by the hen. Gamekeepers use incubators largely for rearing pheasants, and, of course, on large poultry farms they are indispensable. Various forms of foster-mothers, artificially warmed by lamps or hot water, have also been contrived in which the chickens can be successfully reared after they are hatched. In due course they are moved to cold brooders, and finally to poultry houses.

Bacteriological incubators differ from those for birds in that the heating surface generally surrounds all sides of the I. chamber, and there is usually no special

Paris, and an improvement was made in Hearson's, which is used at various hospitals and institutions throughout Great Britain.

See T. Christy, jun., *Hydro-Incubation*; H.M.S.O., *Incubation and Hatchery Practice*, 1952; J. H. Sutcliffe, *Incubators and their Management*; H. H. Stoddard, *The New Egg Farm*. For bacteriological I. see catalogues of Hearson of London; Cambridge Scientific Instrument Co., Cambridge; and P. Lequeux, Paris.

Incumbent (Lat. *incumbo*, I bend or lean), word which is said variously to signify 'diligent residence,' or 'assiduous application to duties.' In eccles. law it includes such rectors, vicars, and perpetual

curates as have been duly instituted in their offices. Every I., or holder of a parochial benefice, has care of the souls in his own par., and it is a spiritual offence for any other clergyman to preach, read prayers, or otherwise officiate in the par. of another I. without authorisation of the diocesan bishop. An I. is *ex officio* chairman of the vestry, and upon him devolves the duty of keeping the local register of marriages, baptisms, and burials. Two I.s may in certain circumstances effect an exchange of livings (see also GLEBE, as to extending poor livings) by deed. An I. may be deprived of his living for illiteracy, minority, simoniacal offences (trafficking in benefices), lack of holy orders, conviction for felony and other crimes, and such spiritual offences as affirming doctrines contrary to the Thirty-nine Articles, heresy, schism, and demanding payment for administering a sacrament. An I. may resign by application to the ordinary, but a resignation is invalid unless assented to by the bishop.

Incunabula is a word derived from the Latin meaning a cradle or bp., but has come to be used in a very specialised sense to signify the earliest books printed from type, and particularly those printed before the year 1500. Since the invention of printing in Europe is generally attributed to Gutenberg, whose first books appeared about half way through the 15th cent., we are limited by definition to a period of about 50 years. The rival claim that printing was invented earlier in the cent. by Laurens Coster of Haarlem is without firm corroboration, since there are no known books in existence bearing his imprint. The first book issued by Gutenberg, probably in collaboration with John Fust, was the *Mazarin* or 42-line Bible, which was printed in a Gothic type, with initials and ornamental borders illuminated by hand. It is interesting to note that the early printers aimed not at creating a new style suitable to the medium of type, but simulated the finest examples of existing illuminated MSS. Chief among the notable books which came from this press were the *Psalter* of 1457, the first book in the hist. of printing to bear a date, and the *Latin Bible* of 1462.

Printing was first introduced into Italy by 2 Ger. printers, Sweynheym and Pannartz, who set up a press at the monastery of Subiaco in about 1464, and that country rapidly achieved supremacy in the art. Venice became pre-eminently the centre, attracting many printers, among them Da Spira, Jenson, Ratdolt, and, later, Aldus. The It. MSS. of the time to which these printers turned for their models were written in the 'humanistic' script, a refinement of the caroline miniscule. This 'round,' cursive, and easily legible hand became, fortunately for the eyesight of the modern world, the prototype of what are now known as roman type-faces. Germany, the only country not to adopt this design, still uses type-faces based on the Gothic letter, or *lettre de forme*. The length of the eds. of

the earliest books was governed chiefly by the capacity of the type to stand up to the printing press, and numbers averaged about 200-300 copies, rising to about 500 by the end of the cent. The fact that the total number of books printed in Venice alone by the end of the cent. is estimated to have been about 2,000,000 gives some idea of the rapid expansion of printing from its inception. Paper, then a staple product of Italy, was chiefly used for books, though frequently a smaller part of an ed. was printed on vellum. Many eds. were illustrated with woodcuts, some of which were afterwards illuminated by hand. A notable illustrated book was Aldus's *Hyperotomachia Polifili*, which contained over 500 woodcuts. Caxton set up his press at Westminster in 1476, though his first book, *The Histories of Troy*, also the first to be printed in English, was printed at Bruges a year earlier. This was followed by an od. of the *Canterbury Tales*, and in 1481 he issued his first illustrated book, *The Mirror of the World*. Caxton used a formal Gothic type and also 'secretary,' a cursive version of the same face. His achievement lay not so much in the quality of his work, which was not equal to the best It. printing of the time, as in the fact that his prolific output did much to establish a national Eng. language.

The difficulties of establishing classifications of I. spring from the fact that so many early books are not only undated, but also bear no printer's name. Identification is most safely made from the type-face. Haebler's *Typenrepertorium der Wiegendrucke*, 1905, takes this approach. Among earlier bibliographies are Panzer's *Annales Typographici*, Nuremberg, 1793, and Hain's *Repertorium Bibliographicum*, Stuttgart, 1826-38. In more recent times we have Robert Proctor's *Index to the early printed books in the British Museum*, 1898, which has been revised and expanded since the author's death; also the *Gesamtkatalog der Wiegendrucke* (7 vols.), Leipzig, 1925-38, and J. C. T. Oates, *Catalogue of the fifteenth-century printed books in the University Library, Cambridge*, 1954. See E. G. Duff, *Early Printed Books*, 1893. See also BIBLIOGRAPHY; BOOK; MANUSCRIPTS; PRINTING.

**Indecency.** Indecent exposure of the person in public is a common law misdemeanour, punishable by fine or imprisonment or both, whether there be an intention to violate the canons of decency or not. An indecent assault upon any female is punishable by imprisonment not exceeding 2 years, under the Offences against the Person Act, 1861. Sodomy or bestiality is a felony punishable by imprisonment for life. An attempt to commit sodomy is a misdemeanour punishable with imprisonment for 2 years. The Criminal Law Amendment Act, 1885, provides a punishment of not more than 2 years' imprisonment in the case of any male person publicly or privately committing, or being a party to the commission of, any act of gross I. with any

other male person. Scots law is practically similar in all respects. Between 1956 and 1957 this and related questions were considered by a departmental committee under Sir John F. Wolfenden (q.v.).

**'Indefatigable'**, *The Brit. battle-cruiser launched in 1911, 12-in. guns, 23 knots. On the outbreak of the First World War she was stationed in the Mediterranean. During the battle of Jutland (q.v.) she was a unit in Adm. Beatty's fleet, but was sunk by the Ger. battle-cruiser *Von der Tann*. There were no survivors. A Brit. fleet aircraft carrier of 23,000 tons, laid down in 1939, now bears the name.*

**Indefinite**, in mathematics, was originally used for infinite, but at the present time is generally only to be found in the phrase *I. integral*, to denote the process of integration, without reference to limits.  $\int x^n dx$  and  $\int_0^x x dx$  are respectively *I.* and definite integrals.

**Indemnity**, contract, express or implied, to keep a person immune from liability under a contract into which he has entered, or intends to enter. Contracts of fire, marine, and accident insurance (but not life assurance) are instances of such contracts. An *I.* differs from a contract of guarantee or suretyship, because the liability of a guarantor or surety depends upon a third person, the prin. debtor, making default, whereas the person under a liability to indemnify another is bound to do so, irrespective of the default of other persons. A contract of *I.* is not, but a guarantee is, within the Statute of Frauds (see **CONTRACT** and **FRAUDS**, **STATUTE OF**), and, therefore, the form of an *I.* is immaterial. Other familiar examples of *I.s* are the implied contracts by principals to indemnify their accredited agents from all liability properly incurred in relation to the agency. This principle in the law of agency also applies as between partners. A contract to indemnify a person against liability for an unlawful act is void. An Act of Indemnity is an Act passed by Parliament to indemnify ministers or M.P.s against liability for penalties incurred for unlawful acts innocently committed in the course of their duties (see **PARLIAMENT**).

**Indenture**, practically synonymous with a deed (q.v.), since the requirement of 'indenting' the edges became unnecessary to the validity of an instrument. An *I.* was an instrument made between two or more persons with distinct interests, as opposed to a deed poll or instrument made by one person or a set of persons having identical interests. Formerly copies of an instrument were always made on the same parchment, or paper, and then cut into as many parts as there were copies, with a wavy or scalloped line, so that the genuineness of any part could at any future time be estab. by merely fitting the edges together. Other formalities having taken the place of 'indenting', the designation of a deed as an *I.* is now mere surplusage.

**Independence**, city, cap. of Jackson co., Missouri, U.S.A., 12 m. E. of Kansas City

in potato, Indian corn, and wheat area. It manufs. farm machinery, furnaces, stoves, cement, and flour. It is the H.Q. of the Reorganised Church of Jesus Christ of Latter Day Saints, and the home of former President Harry S. Truman. Pop. 37,000.

**Independence, American War of**, see **UNITED STATES OF AMERICA, History**.

**Independence, Declaration of (U.S.A.)**, see **DECLARATION OF INDEPENDENCE (U.S.A.)**.

**Independence Day**, commemoration observed in the U.S.A. on 4 July. It is a legal holiday, and is kept up by various celebrations, such as patriotic speeches and meetings. It commemorates the Declaration of Independence on 4 July 1776.

**Independence Hall**, building in Philadelphia where, on 4 July 1776, the Declaration of Independence was adopted by Congress and read to the people. The Continental Congress met there. It is now an historical museum.

**Independent Labour Party (the 'I.L.P.')**, throughout much of its hist. the largest and most influential of Brit. Socialist organisations. The I.L.P. was founded at a conference held at Bradford in 1893 over which Keir Hardie (q.v.) presided. He was subsequently its chairman. Other distinguished chairmen have been J. Ramsay MacDonald and Philip Snowden (later Lord Snowden). The fortunes of the I.L.P. were for a long time intimately bound up with those of the Labour Party, but its influence declined sharply from 1930 onwards and it now (1958) has no representatives in Parliament. It represented an extreme left-wing and pacifist section of the Labour movement, and, as such, was opposed to both world wars. From 1926 until his death (1946) James Maxton was the virtual leader of the I.L.P.

**Independent Order of Oddfellows**, see **ODDFELLOWS**.

**Independent Television Authority**, set up under the Television Act, 1954, to provide, for an initial period of 10 years from the passing of the Act, television broadcasting services additional to those of the B.B.C. for so much of the U.K., the Isle of Man, and the Channel Is. as may from time to time be reasonably practicable. The Television Act lays down that the programmes themselves shall, except in certain defined circumstances, be provided by programme contractors and not by the Authority itself. These companies provide their own programme material, studios, and artistes, but the news is the responsibility of a separate non-profit-making news company. The transmitters are built by and are under the control of the Authority.

Independent television is financed from money paid to the programme contractors by advertisers whose advertisements are shown, but Parliament was determined in passing the Television Act that the advertising element should not be allowed to colour the programmes themselves. Thus, the system brought into being by the Television Act makes impossible the

'sponsoring' of programmes by advertisers as practised in the U.S.A. and elsewhere, whereby a programme is adopted or provided by one or more individual advertisers. The Brit. system is entirely different; the programmes are the sole responsibility of the programme contractors, and the advertisements must be inserted at the beginning or end of the programme items, or at 'natural breaks' within them.

At present the permitted hours of broadcasting for I. T. A. programmes are a maximum of 50 hrs per week with a maximum of 8 hrs on any one day. There is a closed period on Sunday from 6.15 to 7.25 p.m., although religious programmes may be broadcast during that time. In general, the limitations on hours of broadcasting do not apply to religious services and outside broadcasts of events the timing of which is outside the control of the programme companies.

Transmitters are at present operating in the following areas: London, Croydon transmitter, serving a pop. of 11 million; Midlands, Lichfield transmitter, serving a pop. of 5.7 million; N. (W.), Winter Hill transmitter, serving a pop. of 7.21 million; N. (E.), Emley Moor transmitter, serving a pop. of 4.93 million; Central Scotland, Black Hill transmitter, serving a pop. of 3.82 million; S. Wales, St Hilary transmitter, serving a pop. of 3.28 million. A station in the Isle of Wight to serve approximately 2 million people in the S. region was scheduled for the summer of 1958.

Programmes produced by the Authority's programme contractors cover a wide field, and include current affairs programmes, broadcasts of sporting events, drama, variety, serials, westerns, panel games, and prize shows. There are also 3 news bulletins daily, and religious epilogues at the end of each evening's programmes. Examples of programmes which are among the most popular at present are: 'Sunday Night at the London Palladium' (variety from the Palladium); 'Take Your Pick' (audience participation show); 'I Love Lucy' (Amer. family comedy); 'The Army Game' (comedy series); and 'Armchair Theatre.'

**Independents, or Congregationalists, see CONGREGATIONALISM.**

**Inderab, see ANDERAB.**

**Indeterminacy Principle, or uncertainty principle,** was enunciated by Heisenberg in 1927. In simple terms it states that it is impossible to determine exactly and simultaneously the position and momentum of a particle. If  $\Delta p$  is the range of values found for the momentum of the particle and  $\Delta q$  is the range of values in the simultaneous determination of the position of the particle, then the product  $\Delta p \cdot \Delta q$  is of the order of magnitude of  $h$ , Planck's constant,  $= 6.62377 \pm 0.00018 \times 10^{-27}$  erg. sec. A similar relation holds for determinations of the energy ( $E$ ) at a time  $t$ , viz.  $\Delta E \cdot \Delta t$  is of the order of  $h$ . This does not arise from experimental errors; it is a fundamental characteristic of nature, and an essential

postulate of quantum mechanics. *See* QUANTUM THEORY.

**Indeterminate,** in mathematics, used in sev. connections. Simultaneous equations are called I. when an insufficient number of such equations is given. Thus the equation  $5x + 3y = 21$ , where  $x$  and  $y$  are independent unknown quantities, is I., and has an infinite number of solutions. In the differential calculus the name I. is given to such expressions as the limit of  $\frac{a^2 - x^2}{a - x}$  when  $x = a$ , which take the form

$0/0$ , or similar forms, such as  $\frac{\infty}{\infty}$ ,  $0 \times \infty$ , etc., but the values of these forms can be found by algebraical, trigonometrical, and other processes. *See also* DIOPHANTINE EQUATIONS.

**Index,** in mathematics, that number placed after and above a quantity to denote the power to which the quantity is to be raised. Thus  $a^3 = a \times a \times a$ . It follows that  $a^3 \times a^7 = a^{3+7} = a^{10}$  and, more generally,  $a^m \times a^n = a^{m+n}$ , where  $m$  and  $n$  are positive whole numbers. This is one of the fundamental laws of algebra, and is known as the I. Law. So also  $a^m \div a^n = a^{m-n}$ , and  $(a^m)^n = a^{mn}$ . It has been found convenient to make use also of fractional and negative indices, which at first sight seem unintelligible. To ensure that the I. Law  $a^m \times a^n = a^{m+n}$  shall be true for all values of  $m$  and  $n$ , integral and fractional, positive and negative, we give to such quantities as  $a^{\frac{1}{2}}$  and  $a^{-6}$  those meanings to which the formula leads us. Thus  $a^{\frac{1}{2}} \times a^{\frac{1}{2}} = a^{\frac{1}{2} + \frac{1}{2}} = a$ ,  $\therefore a^{\frac{1}{2}} = \sqrt{a}$ , and more generally  $a^{\frac{p}{q}} = \sqrt[q]{a^p}$ , also  $a^0 \times a^4 = a^{0+4} = a^4$ ,  $\therefore a^0 \div a^4 = 1$ , and  $a^4 \times a^{-6} = a^{4-6} = a^{-2} = 1/a^2$ ,  $\therefore a^{-6} = \frac{1}{a^6}$ , and more generally  $a^{-n} = \frac{1}{a^n}$ .

*See also* LOGARITHM.

**Index Librorum Prohibitorum**, title of a list of books prohibited by the Rom. Church on doctrinal or moral grounds. The origin of eccles. prohibitions dates from very early in the hist. of the Church, and the earliest known instance is the *Notitia Librorum Apocryphorum qui non recipiuntur*, a catalogue of forbidden apocryphal works, issued by Pope Gelasius (494). What may be regarded as the first Rom. Index was pub. by Pope Paul V (1557-9) through the Inquisition at Rome, and was confirmed by Clement VIII in 1595. When the books in the list or catalogue are allowed to be read after correction or alteration, with the approval of the papal authorities, the list is termed *Index Expurgatorius*. Later Pope Sixtus V organised a special congregation, consisting of a prefect, cardinals, consultants, and examiners of books, the proceedings being governed by rules laid down by Pope Benedict XIV in a constitution issued in 1753. All books considered pernicious to Rom. Catholics and all versions of the Bible by unauthorised persons



are placed on the Index by the Congregation of the Holy Office.

Obscene books are forbidden except 'classical authors, ancient or modern . . . on account of the elegance of their diction, which are not to be used for teaching children. The ban still remains on Gibbon's *Decline and Fall*. The works of David Hume, John Stuart Mill, and Oliver Goldsmith (for his hist. of England) are proscribed along with Sterne for his *Sentimental Journey*. Savonarola, Kant, Voltaire, and Croce share the Index pages with Stendhal and D'Annunzio.

The Book of Common Prayer is also banned. Dante, Copernicus, and Galen have been removed.

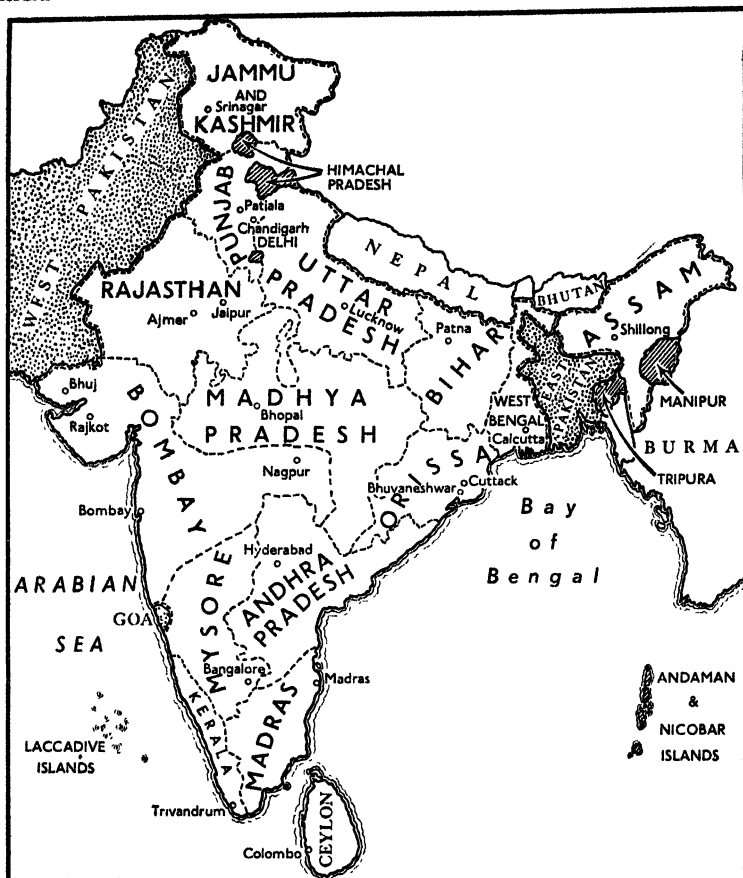
Any living author placed on the Index can earn remission by re-writing his book or cutting out the offending passages. Permissions to read forbidden books are granted to students. See also LITERARY CENSORSHIP.

**Index Number**, see STATISTICS.

**Indexing**, operation of compiling an alphabetical list of statements and allusions contained in files or in a book or series of books or periodicals, together with the page number, folio number, or other reference to where the indexed matter is to be found. An index differs from a 'table of contents' by being a more complete analysis of the contents, and by being arranged in alphabetical order. The term as applied to the f. of books and periodicals has been in use since the 16th cent. and derives from the Lat. word *index* which was used by Cicero and other classical writers in the same sense. Calendar, inventory, and register were alternative terms which have now been superseded. Specialised I., such as that of the contents of a library, is termed cataloguing (q.v.), while an index of the works of a single author, or of works on a given subject, comes under the heading of bibliography (q.v.). There were a number of indexes to books pub. in the 16th cent., among the most notable being that to the 1556 ed. of Polydore Vergil's *Anglica Historia*. Many indexes of the 17th and 18th cents. were intended rather as whimsical enticements to the reader to dip into the contents than as a serious analysis of the subject-matter. The index of the *Spectator*, *Tatler*, and *Guardian* (1757) was, however, a model of its kind. During the 19th cent. and after, a number of scientific and informative works have made I. an indispensable aid to the reader, while the growth of periodical writing brought into being a number of cumulative indexes, an early example of which was W. F. Poole's *Index to Periodical Literature*, New York, 1853. A 'general' index contains entries under proper names, place names, and subject-headings. It may, however, be advisable to provide 2 indexes to a single work, one being an index of names and the other an index of subjects. In a subject index the selection of catchwords presents the indexer with a problem which he can only solve by an understanding of his author and by an assessment of what the reader to whom the work

may be unknown would look for. Correct alphabetical order is never so simple a process as it may seem to the inexperienced. It should be carried through either to the end of the initial word or to the end of the initial group of words, that is, to the first mark of punctuation. The first method is called 'nothing before something' and by it one would file New Barnet and New Zealand before Newfoundland. The second method, usually called 'all the way through,' arranges by first New Barnet, then Newfoundland, and then New Zealand, as it does not take account of the space. The first method is adopted by the Brit. Standards Institution and by this encyclopaedia, and the second by the Post Office Directories; but whichever method is used, it should be adhered to throughout the index. Many other obstructions arise, such as Mac, Saint, apostrophe s, and numbers, and the would-be indexer is advised to refer to the Brit. Standard: 1794:1951. Indexes prepared for press may be compiled either on slips or cards. The slip system consists of allotting a slip to each letter of the alphabet or each subdivision of a letter (e.g. Aa-Ak, Al-Aq, Ar-Az). The entries are then made on the appropriate slip. The card system differs from this in that each reference is written on a separate card which bears the appropriate catchword as a heading. The cards may then be sorted into alphabetical order and ed. when all the entries are complete. The invention of the card-index system is attributed to the Abbé Jean Rozier (1734-93), whose *Tables des Mémoires de l'Académie des Sciences* was pub. in 1775. It is the only suitable method for compiling an expansive index of, for example, files to which constant additions are being made. In book-indexing if there are a number of references under one entry, the references should themselves be classified under appropriate sub-headings which may be arranged either alphabetically or in chronological order or in the order in which they appear in the course of the book—the choice being determined by the nature of the work to be indexed. See also CATALOGUES AND CLASSIFICATION. See H. B. Wheatley, *How to make an Index*, 1903; A. L. Clarke, *Manual of Practical Indexing*, 1933; G. V. Carey, *Making an Index*, 1951; R. L. Collison, *Indexes and indexing*, 1953.

**India** (in Hindi known as **Bharat**), rep., member of the Commonwealth, formerly a large portion of Brit. I., together with many Princely States in treaty relations with the Brit. Gov., then since Aug. 1947 an independent dominion, and now since Jan. 1950 a rep. I. is a union of 14 states (including Jammu and Kashmir which is now the subject of dispute with Pakistan before the U.N.), a very large reorganisation of the constituent units having been effected in 1956. This was roughly on a linguistic basis, but geographical, economic, and other practical considerations imposed departures from the linguistic principle in not a few cases. The new states (see map) are Andhra,



STATES AND TERRITORIES OF THE INDIAN UNION ACCORDING TO PROVISIONS OF THE STATES REORGANISATION ACT

Assam, Bihar, Bombay, Kerala, Madhya Pradesh, Madras, Mysore, Orissa, Punjab, Rajasthan, Uttar Pradesh, and W. Bengal (qq.v.). There are also 6 small centrally administered areas, Andaman and Nicobar Is., Delhi, Himachal Pradesh, Laccadive and Admindive Is., Manipur, and Tripura. For all hist. prior to 1947, and for general information, see INDIAN PRINCELY STATES and INDIAN SUB-CONTINENT.

**Area and population.** The area of I. is 1,269,640 sq. m., and the pop. (1951) 356,691,624. It was estimated in 1954 that the pop., including Jammu and

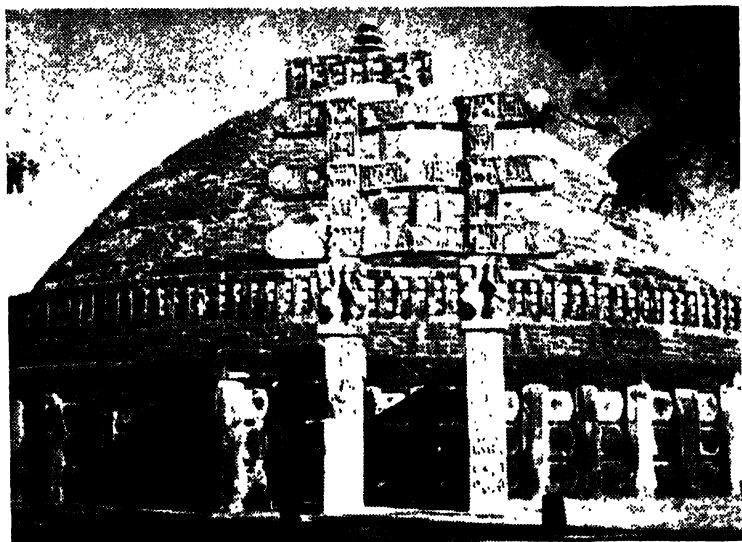
Kashmir (4.3 million) and refugees from Pakistan (8 million), had risen to 376,500,000. Only China has a larger pop. The natural increase is now about 1.5 per cent or 5.5 million annually. The average mean density is 312 per sq. m. Of the total pop., roughly 303 million are Hindu, 35 million Muslim, 8 million Christian, 6 million Sikh, and 1.5 million Jain.

There are too many large cities to list fully. The biggest are Calcutta, including Howrah (2,982,307), Bombay (2,839,720), Madras (1,416,508), Delhi, Old and New (1,191,104), Hyderabad (1,085,722),

Ahmedabad (788,333), Bangalore (778,977), Kanpur (Cawnpore) (705,383), Lucknow (496,861), Poona (480,982), and Nagpur (449,099) (qq.v.).

**Physical features.** The main geographical and climatic features are described under INDIAN SUBCONTINENT. I., as it now is, stretches some 2000 m. from N. to S., from lat. 37° to lat. 8°, and some 1700 m. from W. to E., from long. 66° to long. 97° E. On the NW. border lies Pakistan, and beyond Kashmir the Soviet Union, to the N. and NE. lie China, Tibet, and

regularly accompanied by cyclones which originate in the Bay of Bengal. Cherrapunji in Assam appears to receive the attentions of both, having once (1861) recorded an ann. rainfall of 905 in. Its ann. average is 426 in. The great rvs. of I. are the Ganges, together with the Jumna which joins it at Allahabad, and the Brahmaputra. There are many others of great size and length, such as the Narbada, the Mahanadi, the Tungabhadra, the Krishna, and the Godavari; but the rainfall is so uncertain and so



*The High Commissioner for India*

#### SANCHI STUPA

Nepal, and to the E. Burma. Surrounding the N. borders is the vast mass of the Himalaya Mts, and to the E. the complicated and partly unexplored mt ranges which separate I. from China and Burma. I. is therefore both tropical and sub-tropical, and contains the highest mts in the world, extensive plateau lands crossed by numberless rvs., many of which are dry in the hot season, and a lengthy coastal plain, almost uniformly flat and devoid of cliffs. The total coastline is 3500 m. There is consequently the greatest variety of climatic conditions, great extremes of temp. and rainfall, and both extreme aridity and extreme humidity. There are 2 recognised rainy seasons, that of the SW. monsoon, approximately June-Aug., which is the prin. rain supply for most of I., and that of the NE. monsoon, approximately Oct.-Dec., which benefits mainly the E. areas of the S. peninsula. This monsoon is

concentrated in short periods that the dispersal is very rapid, with the result that without major control works the rvs. do not afford an adequate irrigation supply for the areas through which they pass. Indeed, from the necessity to take into account their maximum flood level and width, they constitute formidable and costly obstacles to road and rail communication. One of the main legacies of Brit. rule in I. is a widespread irrigation system, which by 1947 brought water to some 50,000 sq. m. of land otherwise unwatered. The system is being steadily and zealously expanded by the present Gov. of I. with very large joint irrigation and hydro-electric works.

**Agriculture.** I. remains a predominantly agric. country, though her industrial capacity is now expanding at a great pace. In 1931 it was estimated that nearly one-third of the working pop. was employed directly on the land. The

comparable figure to-day (1958) does not seem to be available, but it is unlikely that there has yet been any startling change, particularly as during the first 5 years of independence circumstances compelled I. to devote strenuous, and strikingly successful, efforts to the increased production of food, largely food-grains. The total area under food-grains in 1953-4 was 261 million ac. The total cultivable area has been estimated as 360 million ac.

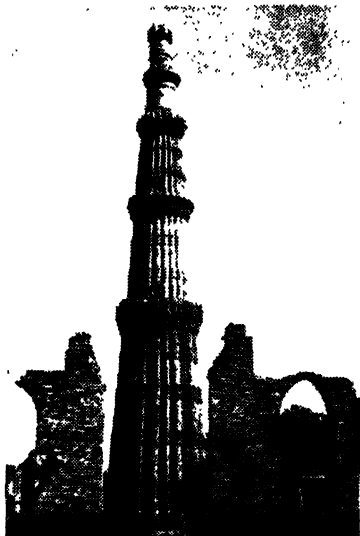
Traditionally land revenue has been one of the prin. sources of income for the state (formerly prov.) gov. in I. In consequence there have been exhaustive surveys of both occupied and unoccupied land, and land records of occupation, output, and assessable value are fairly complete. This is particularly true of the areas where the State is the direct landlord—the Ryotwari system—and where the assessable value is periodically revised. In the areas where private landlords make themselves responsible for paying a fixed revenue to the State—the Zamindari system—irrespective of what profit they may themselves derive from the land they hold, the stimulus to maintain up-to-date records is not so great. This latter system is now being gradually abolished in most states.

The prin. crops grown in I. are rice, wheat, sugarcane, pulses and oil-seed, cotton, jute, and tea. In 1953-4 I. produced 66 million tons of food-grains, consisting of 56.1 million tons of cereals and 9.9 million tons of pulses. Rice output was 27.1 million tons, and wheat 7.8 million tons. All these figures constitute records, and while favourable monsoons played a significant part in their achievement, credit must also be given to the great impulse supplied by the first Five-Year Plan, in which approximately one-third of the total expenditure planned was earmarked for schemes of agric. improvement. In 1954-5 I. produced over 1½ million tons of refined sugar and all purchases from abroad ceased. Other significant figures of production worth recording are cotton 4,298,000 bales (1954-5), jute 4,605,000 bales (1952-3), and tea 660,000,000 lb. (estimated 1955-1956).

It must be remembered, however, that in the matter of agric. self-sufficiency I. has two formidable problems in the ann. 5½ million increase in pop. and the uncertainty of climate. Both drought and floods can quickly upset all calculations, and in so vast an area result in human misery on a catastrophic scale. While the precepts of birth control and family planning can only be expected to be inculcated very slowly, and to go hand in hand with an expansion in education, the control of rivs. and irrigation is a matter which can be undertaken immediately. I. consequently has a large number of grand-scale combined irrigation and hydro-electric riv. control projects. The best known are the Damodar Valley, the Bhakra-Nangal, and the Hirakud schemes. Others are the Tungabhadra, Mayurakshi, Bhavani, and Gangapur projects. The

first Five-Year Plan (1951-6) aimed at providing irrigation for an additional 16.94 million ac. In addition, special attention is now being given to the use of fertilisers, the Sindri fertiliser factory being in full production, and to the encouragement of co-operative farming.

**Industry and power.** Industry, in the modern sense, got off to a late and ill-balanced start in I. Cotton and jute mills, also coal-mining, came into existence soon after 1850, and the great iron and steel industry was founded in 1908.



*The High Commissioner for India*  
QUTAB MINAR, DELHI

The two world wars gave industrial enterprise a great stimulus and widened its scope, so that at the end of the Second World War I. ranked as the eighth industrial country in the world. Nevertheless the total industrial output remained very small compared with the size and pop.

In 1948, after partition, the Gov. of I. announced an industrial policy designed to associate private enterprise with official planning. The production of arms and ammunition and of atomic energy, together with all riv. valley projects and the railways, is an outright State monopoly. Coal, iron and steel, aircraft, telephones, telegraphs, wireless, ship-building, and mineral oils are declared to be State responsibilities, but existing private concerns were allowed to continue for not less than 10 years. All other industry is open to private enterprise, but the State has the power to license and,

in cases of mismanagement, to assume control. It also has the authority to assist with finance. In the circumstances of I. these powers were considered necessary if only because of the decision to undertake planned development (see sub-heading below).

At the moment, probably the two most important industries in I. are the textile and tea industries. In 1954, in the cotton spinning and weaving industry, I. had 11½ million spindles and 200,000 looms, with an output of 1560 million lb. of yarn, and nearly 5000 million yds of cloth. In the tea industry there were some 1 million people employed, with a production (estimated 1955-6) of 660 million lb. The jute industry is also of special importance as an earner of foreign exchange, the total output of jute products in 1954-5 having been over 1 million tons with export earnings over £75 million. But it must be recognised that industrially I. is in a transition stage and that any picture of her present industrial capacity is likely to become out of date very rapidly.

Even before partition I. possessed, in the Tata works at Jamshedpur, as fine a steel works as anywhere. Output there has reached (1955) the figure of 1½ million tons. In addition the Gov. of I. have come to agreement with the U.K. and with the U.S.S.R. for the erection of 2 large new plants in the near future. It is planned to produce 4½ million tons of rolled steel. Similarly, though through private enterprise, special encouragement is being given to the cement industry. The output has increased from 1½ million (tons) (1948) to 4½ million tons (1955). At Chittaranjan the Gov. of I. has estab. a locomotive factory; now in operation, it is expected to produce some 200 locomotives annually. At Vizagapatam the gov. has taken control of the shipyard, and since 1952 has built 15 seagoing ships. The Sindri fertiliser factory, an important link between industry and agriculture, began production in 1951, and in 1955 produced 321,000 tons of ammonium sulphate. The Hindustan cable factory, opened in 1954, produced in 1955-6, some 500 m. of cable. The Hindustan machine tools factory began producing high-speed lathes in 1954. Three oil refineries have been installed with an ann. output of some 4 million tons. Many chemical and pharmaceutical factories have been estab. Coal production has risen from 29.8 million tons in 1948 to 38.2 million tons in 1955. Machine-made paper production has risen to 185,000 tons (1955), and includes newsprint.

The significance of the foregoing very short list from among the many industrial activities in I. lies not so much in the production figures, though some of them are remarkable, as in the indication they give of a completely new development in the life of this country. The same significance attaches to the rapid development of sources of power, and the increasing electrification. Mention has been made

(sub-head *Agriculture*) of the major hydro-electric projects, combining new irrigation with power supplies. The installed capacity of plants generating electricity for all I. has risen from 1363 thousand kw. in 1947 to 2494 thousand kw. in 1954, and the actual generation over the same period from 4073 million kwh. to 7522 million kwh. The increases are large, but it is widely recognised that there remains almost unlimited room for further expansion, particularly in the rural areas.

*Planned development.* No account of independent I. would be complete without a brief reference to the Five-Year Plans. It would not be too much to say that both the economic and the political future of I. are at present in the balance, and that the degree of success achieved in implementing the plans will be a major factor in determining the future.

The First Five-Year Plan for 1951-6 was finally approved in Dec. 1952. It envisaged the expenditure of £1766 million, of which the central gov. would spend £1030 million and the state govts. £736 million. The percentage allocations under major heads were as follows: agriculture and community services 16 per cent, irrigation and power 28 per cent, industries and minerals 7 per cent, transport and communications 24 per cent, social services 23 per cent, miscellaneous 2 per cent. The gap between foreseeable available resources and the total proposed expenditure was £802 million, which was to be covered by internal taxation and borrowing, external contributions and borrowing, and deficit financing. It is too early to estimate the extent to which the targets set out in the plan have been reached. It is claimed that the national income has risen by 18 per cent, the production of food-grains by 17 per cent, and of industry by 60 per cent. Whatever the actual results, the Gov. of I. are clearly confident and have pub. a much more ambitious plan for the second five-year period.

The Second Five-Year Plan envisages the expenditure of £3600 million—twice the amount of the first plan—of which the central gov. should spend £1940 million and the state govts. £1660 million. In allocation there has been a major shift towards industry, as the following figures show: agriculture and community services 12 per cent, irrigation and power 19 per cent, industries and minerals 19 per cent, transport and communications 28 per cent, social services 20 per cent, miscellaneous 2 per cent. In the case of this plan, even taking into account what may be hoped for from taxation, internal and external borrowing, and from deficit financing, there remains an uncovered gap of £300 million.

*Trade.* During the Second World War, owing to the world shortage of all kinds of goods and the dislocation of normal sources of supply and communications, I. experienced a period of large favourable trade balances and built up a sterling balance of some £1200 million. Since the

end of the war, and after independence (1947), the position has entirely changed. The figures for all sea, land, and air-borne merchandise show consistently adverse trade balances from 1950-1 to 1954-5, varying from £18 million (1950-1) to £160 million (1951-2), with a latest figure of £51 million (1954-5). The prin. exports, in money value, are tea, cotton manufs., jute products, hides and skins and leather goods, and oils. The prin. imports, also in money value, are machinery, oil, raw cotton, grain and flour, metals and ores. The changing pattern of trade and the adverse balance are clearly related to the Five-year Plans and I.'s determination to build up indigenous industry, but not at the cost of agriculture or of increased austerity. I. still retains (1955) a sterling balance of £550 million, and if the great expenditure involved in the Second Five-Year Plan is likely to constitute a severe drain upon all external balances, the risk is a calculated one.

**Education.** Education in I. has since 1921 been under the administrative control of state govts. The central gov. has, however, taken an increasing interest, both through financial subvention and through experiment and example. In 1951 it was estimated that only 16.6 per cent of the pop. were literate, i.e. could read and write in some language. It is therefore not surprising that the constitution requires that by 1961 compulsory education should be provided for all children up to the age of 14. In 1955-6 provision was in fact made for 50 per cent of such children.

There are (1953-4) 239,118 primary schools providing for 21,000,000 children, 25,884 secondary schools providing for 6,400,000 pupils, 467 colleges catering for 511,000 students, and 30 univs. for 41,000 students. The total of all enrolled students, including special and vocational institutions, is 29,536,000. The total expenditure is about £112 million. The contribution by the central gov. is, of necessity, confined mainly to univs. special and vocational training, and to the co-ordination of inquiry and experiment. A particular problem facing all educational institutions in I. is the constitutional requirement that Hindi should be the official language by 1962. In addition to the fact that strong opposition to the change has been voiced, particularly in S. I., the practical problems of providing enough teachers fully versed in Hindi and of producing text-books, especially on scientific and technical subjects, in that language make it probable that a longer period will have to be allowed.

**Communications.** All railways in I. are State-owned, and with a mileage of 34,100 claim to be the largest system in Asia and the fourth largest in the world. Having carried (1953-4) 1220 million passengers and 99 million tons of goods, the claim may well be justified. The train mileage run was 195 million m., and net earnings were over £30 million. The railways are organised in 7 zones, and overall control and administration are in

the hands of the Railway Board in Delhi. A major problem has been one of rehabilitation and replacement after the war and, later, partition. £300 million was allotted for this purpose in the First Five-Year Plan. Capital expenditure of £90 million was provided for 1955-6. Both locomotives and all-steel coaches are now being produced in I. Little electrification has yet been undertaken, the total electrified mileage being only 240. Plans for further suburban electrification around Calcutta and Madras are now in hand.

There were in 1951 97,000 m. of metalled roads and 147,000 m. of unmetalled. For a country of I.'s size and character, where roads must for many years constitute by far the most used means of communication, these figures are obviously inadequate. In 1947 the central gov. undertook responsibility for constructing and maintaining national highways; all other roads are the responsibility of state govts. National highways at present total about 13,800 m. The First Five-Year Plan provided for the construction of some 6000 m. of new surfaced and 20,000 m. of unsurfaced. The Second Plan provides an even more ambitious programme.

Civil aviation has obviously a great part to play in a country of such great distances, and is rapidly assuming an important role in I.'s communications system. There are altogether 81 aerodromes under gov. control and operation, of which 3 are international airports—Bombay (Santa Cruz), Calcutta (Dum Dum), and Delhi (Palam). A further 9 aerodromes have been declared customs aerodromes. A further 13 are under construction or contemplated. A Civil Aviation Training Centre has been estab. at Allahabad. There are 12 subsidised flying clubs. All air transport is nationalised and controlled through 2 corporations, Air I. International and Indian Airlines Corporation.

**Defence.** The supreme command of all armed forces in I. is vested in the President. The minister of defence exercises overall control of all the 3 services. Each service is under the command of a Chief-of-Staff.

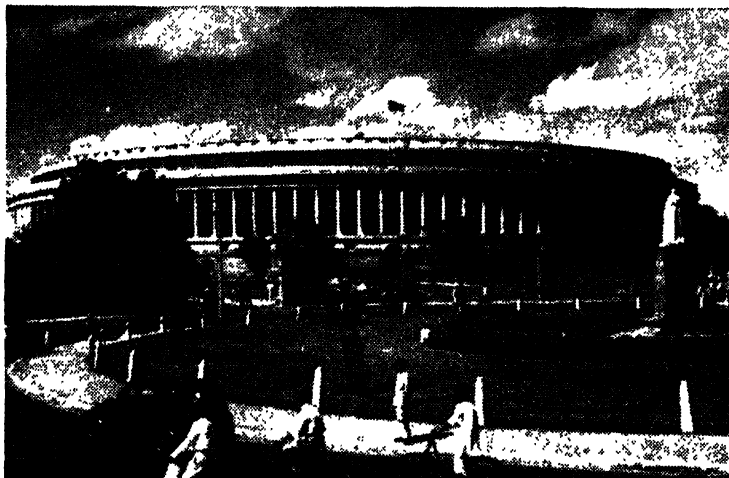
The Indian Army, with a hist. and tradition of gallantry, determination, and efficiency second to none in the world—a tradition fully maintained—is divided into 3 commands, each under G.O.C.-in-C. of the rank of lieutenant-general. Is now self-sufficient in respect of training. The National Defence Academy was estab. at Khadakvasla near Poona in 1954, and the Staff College has been estab. at Wellington. Both these institutions cater for army, navy, and air force cadets and officers. There are also a number of schools and specialised training centres. There is a Territorial Army, in which applicants are enrolled for 7 years' training, followed by 8 years in the reserve. There is also an Auxiliary Territorial Army, now called the Lok Sahayak Sena, training with which involves no liability for military service.

The Indian Navy is in the process of slow but steady expansion. Its prin. ships at present consist of 2 cruisers, 3 destroyers, 7 frigates, and a number of subsidiary ships, including mine-sweepers. It has 3 bases at Bombay, Cochin, and Vizagapatam. It has a small naval aviation wing.

The Indian Air Force dates back to 1933, and was considerably expanded during the Second World War. It has further expanded since 1947, and now operates under 3 commands, Operational Command at Delhi, Training Command at Bangalore, and Maintenance Command

bank-notes, of holding reserves to maintain monetary stability, and of operating the currency and credit system of the country. It also conducts all gov. banking operations. The State Bank of I. is a commercial bank, providing credit for industry, trade, and commerce.

Both the central gov. and the state govts. collect and spend public money. Audit, which is independent of the executive, examines the accounts of all govts. The prin. sources of central revenues are customs, excises, corporation and income taxes, and estate and succession duties. In the state govts. the prin. receipts come



*The High Commissioner for India*

#### PARLIAMENT BUILDINGS, NEW DELHI

at Cawnpore. There are 2 colleges for flying training at Begumpet and Jodhpur, a college for technical training, and a college for training in ground duties. An auxiliary unit has been estab. at New Delhi.

Attention is now being given to the provision of ordnance and equipment from internal resources. In addition to the utilisation of existing factories, a Defence Production Board has been set up to regulate and co-ordinate research and production.

**Currency and finance.** The monetary unit in I. is the rupee, until recently of 16 annas, but now (1957) of 100 naya paise. There will be coins of the value of 1, 2, 5, 10, 25, and 50 naya paise, and 1 rupee. The sterling value of the rupee is roughly 1s. 6d. A lakh of rupees is 100,000 (roughly £7500) and a crore of rupees, a hundred lakhs, is 10,000,000 (roughly £750,000).

The Reserve Bank of I., estab. in 1935, has the duty of regulating the issue of

from land taxes, sales tax, certain state excises, motor vehicles tax, stamps and registration, and agric. income tax. The central gov. revenue account, which has shown surpluses until 1954-5, shows a deficit for 1955-6 of about £13 million, and the budget for 1956-7 forecast a deficit of about £39 million. A noteworthy feature in the overall monetary position in I. is the increase in small savings from £191 million (1948-9) to £474 million (1956-7 estimated).

**Constitution.** A Constituent Assembly began work in I. in Dec. 1946, before the Indian Independence Act of 1947 was passed and all power transferred from Britain. A Constitution Bill was completed and adopted in Nov. 1949, and the new constitution inaugurated on 26 Jan. 1950.

By the Act, I. is declared a Sovereign Democratic State. It is a Union of States, now by amendment of the original Act numbering 14 (including the ter. of Jammu and Kashmir under dispute with

Pakistan), and 6 centrally administered areas. Five chapters of the Act set out the fundamental rights of citizens and the 'Directive Principles of State Policy.' The latter are not enforceable through action at law, but are declared fundamental in the governance of the country.

All executive authority is vested in the President on the advice of ministers; he is assisted by a Vice-President.

Parliament consists of 2 houses, the Council of States (Rajya Sabha), the upper house, and the House of the People (Lok Sabha), the former consisting of not more than 250 members, and the latter of not more than 500 members.

The executive authority in each state is vested in a Governor, appointed by the President, advised by a council of ministers. In some states there are 2 legislative houses, a Legislative Council, the upper house, and a Legislative Assembly; in others there is 1 only, a Legislative Assembly.

The subjects on which the central and state govts. are competent to legislate are set out in 3 lists—the Union List, the State List, and the Concurrent List. Where there is any repugnancy between Union and State legislation on matters falling within the Concurrent List, the law of the Union prevails.

The constitution can be amended only by means of a bill, passed in both houses of the Union Gov. by a majority of not less than two-thirds of the members of each house present and voting. There have so far been 4 Constitution (Amendment) Acts.

The constitution, which is a document of considerable interest to historians, was framed only after an intensive study of democratic constitutions in many parts of the world, and represents a conscious attempt to embody any features adaptable to Indian circumstances and proved by experience to be salutary and workable. It may well be too early yet to assess whether the somewhat remarkable 'Directive Principles of State Policy' may not give rise to controversial interpretation and practical difficulties; they have not yet done so. It is of interest to note that in a particularly important and practical matter, namely, the allocation of legislative authority between the Union and state govts., the framers of the constitution derived much assistance from the old Government of India Act of 1935.

*History from August 1947.* It is not possible within a period of 10 years to arrive at any strictly historical assessments; nor is it accurate to suggest that hist. can be displayed as starting from a particular date. Nevertheless the division of the Indian subcontinent into two self-governing units in 1947, based as it was on acute political divergences intimately related to the withdrawal of a foreign governing power, makes it necessary to take a view, however inadequate it may be, of the prin. events which, as seen from so close, have marked the evolution of the new, divided, independent I. It is not even possible to determine whether the

evolution has been most significant in the internal or the external sphere; but for the sake of easy reference the two may be treated separately.

Internally, perhaps the most important—or rather most fundamental—factor has been the continuing political predominance of the Congress party. This of itself has assured a continuation, though not without noteworthy modifications, of the basic political ideas, on both internal and external policy, widely preached and disseminated during the last 25 years of Indian nationalist opposition to Brit. rule in I. It has meant that the initial years of the sudden transition from dependence to independence, fraught in many comparable cases with particular danger of instability and violence, have passed with exceptional smoothness and tranquillity. There has been in fact only one recognisable challenge to Congress authority. This came from the Communists who, in 1948, embarked upon a programme of violent resistance to the Congress gov. There were areas, notably in Hyderabad and the bordering Andhra ter., where for a time the local authority of the new Gov. of I. was virtually overridden by Communist gangsters, who collected the local revenue and set about a redistribution of land. At the same time in large tns, such as Calcutta and Kanpur (Cawnpore), public life was rendered irksome and insecure by continuous disruption of public services, such as railways, trains and buses, and public conservancy. There is no doubt that the Communists grossly over-estimated their own popular appeal at the time, and that public anger against them steadily increased; but it is to the lasting credit of the new gov. that they recognised the challenge for what it was, and showed no hesitation in meeting it with the sternest measures: measures which, 2 or 3 years earlier as a nationalist opposition, they would themselves have been the first to condemn. The Communist campaign of violence was quickly and ruthlessly crushed, and the tactic of violence abandoned by the Communist party. It remains a fact that, this episode apart, there has been no organised and united political opposition to the Congress party, and that many Indians themselves deplore the lack of a proper corrective, essential to a lively, democratic parl. form of gov.

It is also remarkable that at the same time as having to deal with the Communist challenge, the new Gov. of I. went steadily and successfully ahead with the integration in the Union of the many and diverse Princely States. While it is certainly true to say that a great majority of these states had, apart from their treaty relations with the Brit. Gov., no valid economic justification for an independent existence, it is also true that, economically and administratively, certain of the larger states could claim favourable comparison with any more democratically controlled unit. The pressure exercised by the Gov. of I. was no doubt considerable, but the fact that with the exception



of Hyderabad (q.v.) and Junagadh—and of course of Kashmir where differences with Pakistan still subsist—the integration was completed with peace and speed is a tribute to the good sense of the former rulers and to the accommodation of the Gov. of I.

It was at just this time too that I. suffered the shock of the assassination of Mahatma Gandhi, on 30 Jan. 1948. While Gandhi's association with the Congress party had always been rather as a mentor than a member, it was his name that represented the nationalist spirit to untold millions in the country, and though he had specifically refused to take any part in the independent gov., his influence remained. It is no small achievement by those who have taken his place that while keeping his memory green they have at the same time estab. a firm hold upon the affections of the great mass of the people and translated his maxims into practical action which might well have surprised Gandhi himself.

The first general elections were held in 1951-2, with some 170 million voters. The Congress party was returned with a sweeping majority at the centre and in nearly all states. By common accord of all foreign observers, the arrangements for and conduct of the elections were of a high standard and genuine impartiality, no mean administrative feat. The second general elections were held in 1957. Once again the Congress party had a great majority at the centre, and in all states except one. In the state of Kerala the Communist party won a bare majority and took office as the new state gov. The extent to which a party so fundamentally opposed to the Congress party and its principles can work in with the Union and other state govts. will be watched with the keenest interest and concern.

The First Five-Year Plan was inaugurated in 1951. This is discussed under the sub-head *Planned Development* above, but must be mentioned here, for it constitutes in a sense the greatest event in the internal hist. of the independent Gov. of I. It will be admitted, or avowed, by most concerned with the plan that it was an act of faith, both in the gov.'s own powers of organisation and administration, and in the people for whose benefit the plan was designed. Though great thought was given to its devising, it remained largely an experiment. Now with the Second Five-Year Plan announced (1956) on a much more ambitious scale, the Gov. of I. is in effect claiming the success of the experiment and the vindication of its faith. That the second plan may have to be in some aspects modified and curtailed for purely financial reasons looks at present (1958) probable; if that should be so, it need do nothing to detract from the remarkable advances so far made, or from the basic confidence of the people of I. in a gov. of their own choosing.

Finally, mention should be made of the revision of state boundaries and the

reduction in the number of states in the Union. From pre-1947 days the Congress party had been advocating such a revision on a language basis, but from an early date after 1947 it became increasingly apparent to them that, desirable as it might be to draw boundaries as nearly as possible on such a basis, the effects must be not only to create awkward minority language problems, but also to disrupt social and economic bonds to a greater extent than had been previously anticipated. The solution has in fact compelled a compromise in 2 important states, Bombay and the Punjab, which remain bi-lingual. It has also been to a large extent responsible for the disturbing political result of a Communist gov. in Kerala state.

In external affairs the development of the new, independent I. has been no less striking, though the impact has been, or at present appears to have been, less specific. It should be remembered that until 1947 the whole conduct of I.'s foreign relations was in the hands of officials who, in the last resort, received definite instructions from the Brit. Gov. in London, and though Indians were members of the so-called foreign service, no Indian politician had practical experience of the conduct of foreign affairs in the way that many of them, in local gov., on committees and so forth, had in the conduct of home affairs. This is not to say that many of them had not made foreign affairs a special study, and none more than the Prime Minister, Jawaharlal Nehru.

Since independence Mr Nehru has been the Minister for External Affairs as well as Prime Minister, and the stamp of his thought has appeared plainly in all manifestations of I.'s foreign policy. There is no doubt that, with the exception (until very recently) of the Communist party, that policy has had the full approval of all political parties and the great mass of the Indian people. It is not surprising that the policy of 'non-alignment' should represent much in the past hist. of the Congress party and of Mr Nehru himself. It represents in international affairs the full essence of nationalism, of independence, of the determination to stand unaided and, if necessary, alone. It also represents the firm, liberal conviction that there is no problem, however thorny, which will not yield to argument, discussion, and negotiation, and that once a solution is found the antagonists can, as Gandhi always urged, become the best of friends. In many instances the stand taken by I. in foreign affairs has appeared puzzling and unrealistic to W. observers; yet throughout there has been a conscious and consistent effort to act in accord with the simple principles described.

It is possible to distinguish certain events which for the present must be regarded as indicative of a conscious external policy. Though deeds are more important, and more significant, than words, it is worth quoting Mr Nehru's first public statement of foreign policy

(Mar. 1949), since it is one he has often repeated: 'We are friendly with all countries. . . . Our main stake in world affairs is peace: to see that there is racial equality and that people who are subjugated should be free.' To this should be added other and repeated statements that while I. had no claim or desire to speak for Asia, or to lead Asia in any political sense, the fact could not be denied that both by tradition and culture, and by historical association and analogy, I. could claim a more intimate understanding of the aspirations of Asian countries than any W. powers, however well intentioned.

The first practical demonstration of this line of thought was the invitation to Asian govs. to attend a conference in Delhi in 1948 to consider in particular the position in Indonesia and the relations between Indonesia and the Dutch Gov. It cannot be said that the conference was particularly successful in suggesting solutions for particular problems, but it can be argued that it prescribed the pattern for much that followed.

Within the next few years I. estab. diplomatic relations with all the prin. world powers, including Russia and China, making it clear at the same time that she would join no bloc, military or political. The aversion from commitments in the international sphere has only increased with time. Yet the attachment to, and membership of, the Commonwealth remains. As Mr Nehru has often explained, this is because membership of the Commonwealth offers practical advantages and imposes no restrictions; it is in no sense a bloc.

I.'s next major adventure in the international field concerned the fighting in Korea. She gave her whole backing to the U.N. intervention, and her representative remains the chairman of the Repatriation Commission in Korea.

In 1952 I. played a leading part in the conference of the so-called Colombo Powers (I., Pakistan, Burma, Ceylon, and Indonesia), at which means were sought to avoid or avert a military conflagration in Indo-China, and in 1954, at the Geneva Conference of Heads of States, the influence and exertions of I. were wholly directed, with success, towards achieving a stoppage of military action there.

It was in the same year (1954) that Mr Nehru, in collaboration with Mr Chou En-lai, Prime Minister of China, committed himself to a formulation of the principles which should govern the relationships between independent states, the 'Panch Shila' or 5 principles:

(a) mutual respect for each other's territorial integrity and sovereignty; (b) non-aggression; (c) non-interference in each other's internal affairs; (d) equality and mutual benefit; (e) peaceful co-existence.

Finally, in 1955, by participation in the Afro-Asian Conference at Bandung, I. committed herself, at least by implication, to a recognition in principle that the desire of African peoples to be free of colonial authority corresponds to an

element in the desire of I. to be independent and free of all commitments.

There are two other problems in I.'s foreign relations which deserve mention. The first is the question of Goa, which remains Portuguese ter. within Indian territorial limits. There is pressure from within I. to absorb this enclave within the Indian Union by force if necessary. While using every other means of pressure open to them, the Gov. of I. have steadfastly refused to contemplate a resort to force, and continue to affirm their faith that common sense and geography will in due course compel a solution in their favour.

The other problem is that of Kashmir. In many respects this is not strictly an external problem since it arises from the partition of I. in 1947. Yet Pakistan, though also a member of the Commonwealth, is as independent as any other country, and it must be recorded with regret that so far there is no sign whatever of agreement between I. and Pakistan in this respect. While it is true that both countries have repeatedly avowed their belief that any resort to force is out of the question, it remains a hard fact that both consider themselves bound to large, defensive measures, the cost of which they can ill afford.

It must be repeated that this brief account of the development of I. as an international power is in no sense a hist. It would be easy to quote instances of I. taking positions both at the U.N., where she exercises no small influence, and elsewhere which might seem either unrealistic and impractical, or difficult to reconcile with the trend suggested. It should be remembered that the years following the Second World War, and the years which followed Indian independence, were in the international field the most crowded, the most complicated, and possibly the most menacing period that hist. has ever seen. That a nation newly independent, lacking international experience and faced with internal tasks of vast magnitude, should at times appear to steer an uncertain course should cause no surprise. A comprehensive bibliography will be found under INDIAN SUBCONTINENT. See also HINDUSTANI LANGUAGE AND LITERATURE; INDIAN ARCHITECTURE; INDIAN ART; INDIAN LANGUAGE; INDIAN LITERATURE.

**India House**, name by which E. India House, demolished in 1861, the H.Q. of the old E. India Co., in Leadenhall Street, was known. Prior to such occupation the company transacted its affairs from 1621 to 1638 in Crosby Hall, Bishopsgate. The modern I. H., which is situated in Aldwych, London, and now houses the prin. offices of the Indian High Commissioner to the U.K., was opened by the King-Emperor and Queen-Empress in July 1930. The new building was the outcome of proposals submitted by Sir Atul Chatterjee (q.v.). Lord Irwin's gov. ultimately accepting the project, and the Legislative Assembly voting the sum of £324,000 for erection and equipment.

The building is essentially Indian in provenance; its purposes are not exclusively official, but are also directed towards providing a London home for India. It is the work of Sir Herbert Baker, who had much to do with the building of New Delhi.

**India Office.** Brit. Gov. dept set up in 1858 to administer the affairs of India. Its political head, the secretary of state for India, was assisted by an under-secretary of state. The I. O. estimates were met from Indian Gov. funds. Prior to 1858 Indian affairs were conducted by the E. India Co., under the supervision of a Gov. Board of Control, whose president was responsible for Indian affairs in Parliament. On the transfer of India to the Crown in 1858 the secretary of state was assisted by a consultative council; this council ceased to exist only in 1937 when some of its functions passed to a body of advisers. In 1947, when India and Pakistan assumed dominion status, the I. O. as such ceased to exist, its functions being taken over by the Commonwealth Relations Office. See Sir M. C. C. Seton, *The India Office* (Whitehall Series), 1926.

**India Rubber,** see RUBBER.

**Indian Archipelago,** see EAST INDIES.

**Indian Architecture** has a most complicated hist. There are very anc't ruins at Harappā and Mohenjo-daro, c. 3500-2700 BC, also Buddhist shrines of the 3rd cent. BC at Sanchi; the chief surviving buildings elsewhere date from the 3rd cent. BC onwards. Up to the time (c. AD 1775) when the Brit. occupation became effective, they chiefly comprised (i) Buddhist temples; (ii) Hindu and Jain temples and palaces; (iii) Muslim mosques and palaces. The earliest Buddhist temples, e.g. at Karli and Nasik, were hewn out of the solid rock, with rows of massive stone pillars leading up to an apse containing the *chaitya* (shrine). There were also numerous Buddhist *viharas* (monasteries). Hindu temples usually contain a cell for the shrine, crowned by a curvilinear or pyramidal tower (*sikhara* or *vimana*), an entrance porch, a pillared hall (*mandapam*), and a lofty gateway (*gopuram*). After their conquest of India in 1193, the Muslims began to erect their characteristic mosques (see MOSQUE and MUSLIM ARCHITECTURE), more or less in the style that they had adopted in Persia; but fusion with the Hindu tradition resulted in a hybrid style, due partly to the employment of skilled Hindu craftsmen, and eventually produced the famous Mogul or Mughal style of the 16th-17th cents., at Delhi and elsewhere. The chief Muslim buildings in India (which contrast sharply with the shapeless and over-decorated Hindu temples, but are nevertheless often richly ornamented) are the Great Mosques at Delhi, 1198, Ajmir, c. 1200, and Cambay; the Atala Masjid at Jaunpur, 1408; the Moti Masjid at Delhi; the Great Mosques at Jaunpur, 1438, and at Mandu, 1454; and sev. mosques at Ahmadabad, 15th cent. Among the prin. Mogul examples are famous mosques,

tombs, palaces, etc., at Agra, Delhi, Lahore, Fatehpur Sikri, Udaipur, and Bijapur. Most important among them are the tomb of Humayun at Delhi, 1565-9; the fort at Agra, 1566; the palace and the Great Mosque at Fatehpur Sikri; and the Taj Mahal at Agra (1631-53). From the middle of the 17th cent. Mogul architecture declined, India being disturbed by wars. After the Brit. occupation (c. 1775) W. styles of architecture were introduced—first as the 'Greek Revival' (q.v.), then the 'Gothic Revival' favoured by Sir George Gilbert Scott (q.v.), then some praiseworthy attempts to revive the Mogul tradition (see LANCHESTER, H. V.), then the building of the new Delhi (see BAKER, SIR H. and LUTYENS, SIR E.), and finally the planning of a new capital of the Punjab (see FRY, E. M. and 'LE CORBUSIER'). See J. Fergusson and J. Burgess, *The Cave Temples of India*, 1880; J. Fergusson, *History of Indian and Eastern Architecture*, 1910; and E. B. Havell, *Indian Architecture*, 1913.

**Indian Art.** The earliest known art of India is that of the Indus valley culture (q.v.), dating from about 2500 BC and having affinities with the Sumerian art of Mesopotamia. The Indus culture was succeeded after an unknown interval of time by the Aryan culture which again centred in the Indus valley and dates perhaps from 1000 BC or earlier. This age is known from the Vedas, but few buildings or sculptures of the time have survived. The first period from which dates a continuous knowledge of I. A. comes considerably later. During the reigns of Chandragupta Maurya (322-298 BC) and of his grandson Asoka (273-232 BC) (q.v.), in particular, it is known that sculpture and architecture, the arts in which India has made its greatest contribution to the world, flourished. Persian influence had been in existence since about 800 BC, and was particularly evident during the Mauryan period. The commemorative pillars erected by Asoka may have been Persian in origin. Asoka, being a devout Buddhist, also built a number of burial mounds enshrining Buddhist relics. The greatest of these was the great *Stupa* or burial mound at Sanchi in Bhopal. Among smaller works a number of interesting portrait heads in sandstone and groups of figures in terra-cotta have survived. Early I. A. is realistic, sensuous, pantheistic, seldom idealistic. The tradition continued during the post-Mauryan periods—the Sunga and Kanva dynasties from about 200 BC up to AD 20. Literary evidences show that painting was also practised, mainly as mural decoration. Some of the paintings in the famous Ajanta (q.v.) caves in the Deccan belong to this early period. The Ajanta frescoes were painted over a period from 200 BC to the 7th cent. AD. They depict realistic scenes from Buddhist life, and parables from the Buddhist religion, and as compositions are among the great works of art of the world. Long subtle curves, bold and vigorous lines, and uniform thickness

of line are the chief features. Gk infiltration (327 BC-50 BC) gave rise to the Gandhara (Indo-Gk) school of sculpture. Gk and early Christian influences were also felt as a result of the trade carried on in the empire estab. by the Kushan kings, particularly Kanishka (AD 120-162). From this time date the early sculptured figures of Buddha which have become so well recognised a feature of I. A. The Kushan empire was succeeded in N. India by the Gupta dynasty when Chandragupta I came to the throne in

dynasty and its successor, the Chalukya, are remembered for their elaborate temples hewn from the rock.

Some of the glories of Gupta art were revived in N. India during the reign of Harsha. With the death of Harsha in AD 647 the hist. of art in the N. shifts to the kingdom which was founded in Bengal by the Pala dynasty in AD 750 and lasted until the Muslim invasions of the 12th cent. Much intricate and carefully wrought metal work belongs to this period. The sculpture, notably Buddhistic figures in black slate, approximates to metal work and lacks the sensuous modelling of earlier periods. Artists whose names are known through the writings of a Chinese missionary as having belonged to the Pala school of art are Dhimana and his son Vitapala.

During the medieval period, the 600 years from the death of Harsha to the Mohammedan invasions, architecture was the prin. form of art. Much was destroyed by the Muslims. The Rajputs of the 10th and 11th cents. undertook many great building and engineering feats. A medieval Indo-Aryan type of architecture was evolved in N. India, characterised by a curvilinear spire pointed at the top and bulging in the middle. This was unknown in S. India, where the Dravidian pyramid tower prevailed. Delhi was captured by the Muslims in 1193, an event which was commemorated by the founding of a mosque, the earliest Islamic building in India. Indo-Islamic architecture now came into being. The dome and minaret were introduced and combined with the indigenous features of Hindu art. An outstanding monument of this period is the enormous Qutb Minar, a mosque over 200 ft high started at Delhi by the sultan Qutb-ud-din-Aibak and completed in 1332. Among others of the Delhi sultans who were great builders was Feroze Shah Tughlak (1351-88), who with the aid of his architect Malik Ghazi Sabana enriched Delhi and built many new tns. He was also careful to restore earlier monuments. Before India came under the rule of the Mogul emperors, mention must be made of the artistic achievements of the emperors who ruled in Vijayanagar in the Deccan from 1336, the traditional date of the founding of the empire, until 1565 when the city was sacked by Muslim armies from the N. The temples built under the Vijayanagar dynasty show a magnificent and exuberant style, contrasting with the more austere Indo-Islamic style. The arts of painting and sculpture also flourished.

Under the Mogul emperors a blending of Hindu, Islamic, and Persian styles resulted in a flowering of the arts, particularly architecture and sculpture. The beautiful city of Fatehpur Sikri is perhaps the greatest monument to Akbar, who, however, planned his own mausoleum at Sikandra. This with its 4 terraces and white marble superstructure was completed in 1612 during the reign of Jehangir. To his successor Shah Jehan (1627-58)



*Indian State Railways*  
'TOILET SCENE': A FRESCO PAINTING  
AT AJANTA

AD 320. The dynasty survived for nearly 300 years, when it was finally overcome by the invasion of the Huns, as a result of which few examples of the art of the period have survived. Enough is known, however, to show the excellence to which the art of sculpture attained, especially in the scenes depicted on the walls of temples. The Gupta period is in fact reckoned as the great age of Indian sculpture. The style is less heavy than that of earlier years and is richly decorative. It was the Gupta artists who evolved the most perfect forms of the Buddhist and Brahmin divinities. Metal casting was carried out with enhanced excellence, a remarkable example being the colossal statue of Buddha from Sultan-ganj of the 5th cent., now in the Birmingham museum. The stability given to the country by the Andhra dynasty, which lasted from 225 BC to the 3rd cent. AD, allowed continuous development. This

are owed some celebrated examples of Mogul architecture—the mausoleum of Jehangir near Lahore, and at Agra the Pearl mosque and the Taj Mahal. The Persian influence predominated over the Hindu and decoration became more elaborate than was to the taste of the earlier Mogul emperors.

Painting received a great impetus through the patronage and connoisseurship of the 3 Mogul emperors, Humayun, Akbar, and Jehangir. Humayun, father of Akbar, spent some years of exile in Persia, and on returning to his throne he brought with him Persian painters who



THE GROTTA TEMPLE OF VISHNU  
KARMAH

One of the many underground temples in India, and probably the most ancient type of temple.

influenced the Hindu school. Painting has had a long tradition in India. Mention has already been made of the Ajanta frescoes. Mural paintings of great merit also survive from the 4th to 6th cent. in the caves of Bagh, nearly 300 m. N. of Ajanta. These apart, however, and except for some MS. illustrations of the medieval schools of painting in Bengal, Nepal, and Gujarat, little survives from the cents. before the Mogul era. Mogul painting is mainly miniature work, but derives from Persia and not from the traditional style of MS. painting. Akbar had a number of painters working for him, many of them Hindu and many whose names are known. Subjects chosen were portraits of men of the time and scenes chronicling events. W. influences were also felt. Gradations of tone, effects of light and shade are features of Mogul painting. In this it is distinguished from the work of the painters of Rajputana, Bundelkhand, and the Himalayan Punjab. Rajput painting derived from the traditional mural art and was devoted to illustrating the stories of legend and religious epic. The colouring is mostly flat. The 2 styles often intermingled but in the best work are distinguishable. Mogul painting declined during the reign of Aurangzeb, who discouraged the arts for

religious reasons. Rajput painting continued into the 18th and 19th cents. and centred particularly in Jaipur. Later Rajput painting is seen at its best in the Pahari art, named from the hill country of the Punjab where it flourished. It was divided between the schools centred at Jammu and Kangra. Kangra painting is graceful in line and soft in colouring. In the 19th cent. it declined, although portrait painting was encouraged by the Sikh rulers of the Punjab. As the cent. advanced W. influences weakened many of the distinctive features of Indian art, but in the early 20th cent. a movement in recognition of the artistic heritage of India, in which the Tagore family was prominent, brought about a renaissance of the arts: Dr Abanindranath Tagore has given a unique example of successful return to tradition in brilliant paintings. In Bombay a contemporary school of art sought to assimilate European influences, especially French.

The impetus started by Tagore has led to a revival throughout India. Nandal Bose, Asit Haldar, Sarada Ukil, P. K. Chatterji, and D. P. Roy Chowdhury are prominent names in the revival. Another artist who found inspiration in the Ajanta style was the girl Amrita Sher Gil, who *d.* at an early age. More recently artists have been trying to turn from revivalist work to serious work on modern themes. See A. Grünwedel, *Buddhist Art in India*, 1901; E. B. Havell, *Ideals of Indian Art*, 1911; V. A. Smith, *A History of Fine Art in India and Ceylon*, 1911; E. B. Havell, *Indian Sculpture and Painting*, 1928; A. Coomaraswamy, *A History of Indian and Indonesian Art*, 1927; O. C. Gangoly, *Masterpieces of Rajput Painting*, 1927; G. T. Garratt (ed.), *Legacy of India*, 1937; H. G. Rawlinson and others, *Indian Art*, 1947; S. Kramrisch, *The Art of India*, 1955.

Indian Corn, see MAIZE.

Indian Cress, see TROPAEOLUM.

Indian Fig, see OPUNTIA, PRICKLY PEAR.

Indian Hemp, see BHANG and HEMP.

Indian Ink, see INK.

Indian Language. To-day the very speech of the people in India and Pakistan has become a matter of bitter communal dispute. Most of the peasants continue to talk the speech of their fathers, but the literate minority and politically conscious town-dwellers and students argue about the rights and wrongs of the 'Hindu-Urdu controversy'. The subcontinent possesses hundreds of languages, dialects, and sub-dialects; but when tribal idiom and local variants have been eliminated, we have some 15 major or literary languages, some alike, and some, especially the Dravidian, very different. But the Hindi-Urdu advocates can rightly claim that so far as the ordinary person, especially in the N., is concerned, the only common language is bazaar Hindustāni (see HINDUSTĀNI LANGUAGE AND LITERATURE)—a pidgin form of mixed High-Hindi and Urdu, which together constitute the same language written in different scripts, and compose the lingua franca of nearly

200,000,000 people. This is also the literary language of 100,000,000 people, and the third largest language in the world. Unfortunately this bazaar Hindūstāni is a basic tongue, ill adapted for the expression of ideas more complex than simple direction and marketing. Hence, English still remains the normal language of communication between the better educ. Indians from all parts of the subcontinent in a very similar way to that in which Latin in the Middle Ages was the lingua franca of the nobility and ecclesiastics all over Europe. But just as the Latin of the Middle Ages was far removed from the classical Latin of the schools, so the English of India shows signs of becoming a very different tongue from the English of England to-day. The difference is due to ignorance, historical circumstance, and natural development. There remain, however, a large number of Indians—business and professional men—who use English with the greatest facility, but use words and forms of speech which sound unfamiliar to the contemporary Brit. ear. The speed, and height of pitch, in Indian speech in English are its most constant qualities, and the extreme form is found in Anglo-Indians (Eurasians), who all, to the non-Celtic ear, seem to speak like Welshmen.

Some 225 languages are recorded in linguistic surveys as vernacular in India and Burma. Briefly they may be divided as follows: (1) W. Hindi, with its main dialect, Hindūstāni, in Urdu and Hindi forms; (2) E. Hindi; (3) the central group: (a) Punjabi (including Lahnda or W. Punjabi), (b) Sindhi, (c) Rajasthanī, (d) Gujarātī, (e) Kashmirī (main dialect Kāshṭawārī); (4) Pahari, divided into E. W., and Central; (5) the E. group: (a) Bengālī, (b) Bihārī, (c) Oriyā, (d) Assamēse; (6) S. India group: (a) Marāṭhī, (b) Saurāshtrī, (c) Hindūstānī. Apart from these Indo-Aryan languages, there are the Dravidian languages (Tamil, Telugu, Malayalam, and Kanarese) of S. India, and the Kolarian or Munda language spoken in central India. For further details on the languages of India see INDO-EUROPEAN LANGUAGES.

**Indian Literature.** The greater part of the literature dating from 1000 BC is of religious inspiration, and each religious sect possesses its own sacred books. The most important of these are the *Veda* (q.v.) of the Brahmins and the *Tripitaka* of the Buddhists. Then there are also the heroic songs, the fairy-tales, and the myths, together with a vast amount of gnomic poetry which is faultlessly executed. Scientific work in India has never been divorced from literature proper, and verse has been the medium not only for biography and hist., but also for treatises on medicine, architecture, astronomy, philosophy, and law. India's languages belong to at least 3 main linguistic families; and besides the Indo-European languages, of which the Indo-Aryan is the most complicated branch, there are Dravidian and Kolarian languages (see INDO-EUROPEAN LANGUAGES).

The *Veda* is one of the oldest and most important of the literary works belonging to the Indo-European languages. It is not a series of books, like the Heb. Bible, but a great literature which grew during the cents., and for many generations was handed down verbally. The Vedic literature is now separated into 4 classes—*Samhitas* or collections of hymns; *Brahmanas*, prose texts; *Aranyakas*, forest texts; and *Upanishads*, secret doctrines. The *Samhitas* may again be divided into 4 divs., and it is because of these divs. that the Vedic literature is sometimes spoken of as *Vedas* instead of *Veda*. The *Kalpasutras*, manuals of ritual, also form a literature closely allied to the *Veda*, but as it is not considered to be of divine revelation it is not included in the Vedic literature proper. The first traces of epic poetry are to be found in the *Veda*, but later a whole heroic literature grew up, sung by the *sutas* or bards at various festivals. These epics and ballads have been collected into 2 great epic works which are rather complete literatures in themselves than single poems. The first of these, the *Mahābhārata* (q.v.), is the narrative of the battle of Bharatas, and the author is traditionally supposed to be an anct mythical seer, Vyāsa, who is also supposed to have compiled the *Veda* and the heroic poems, *Purānas* (q.v.). The second of the 2 epics, the *Rāmāyana* (q.v.), is probably the work of a poet named Valmiki, who as far as it is known lived in the 3rd cent. BC; but much of the *Rāmāyana* seems to have been added at a later date. There is more unity, however, in the *Rāmāyana* than in the *Mahābhārata*, but which of the two is the older it is difficult to determine, because neither may be in its original form. The *Rāmāyana* may be considered the epic of E. India, and the *Mahābhārata* of W. India. The *Purānas* are 'old narratives,' and their date is uncertain, but they belong to a later Indian religion, Hinduism. There are 18 'Great *Purānas*' and sev. lesser ones. The date of the *Tripitaka*, the religious literature of the Buddhists, seems to be between the 4th and 3rd cents. BC. In later epochs there was a great output of writing on other subjects in Sanskrit and Prakrit, including works on mathematics, astronomy, medicine, grammar, and music, as well as dramatic works which have been acted down the ages to the present time and have been depicted in many Indian films. See also HINDŪSTĀNĪ LANGUAGE AND LITERATURE and HINDU LAW. See Dinesh Chandra Sen, *History of the Bengālī Language and Literature*, 1911; F. E. Keay, *History of Hindī Literature*, 1920; A. B. Keith, *The Sanskrit Drama*, 1924, and *A History of Sanskrit Literature*, 1928; R. Saksena, *History of Urdu Literature*, 1927; H. Gowen, *History of Indian Literature*, 1931; H. G. Rawlinson, *India, a Short Cultural History*, 1948; J. C. Ghosh, *Bengālī Literature*, 1948.

Indian Mallow, see ABUTILON.

Indian Millet, cereal grass, species of panicum (*P. miliaceum*), widely grown in

Mediterranean countries and the E. Believed to have been the first wild grain to be cultivated. Replaces rice in drier climates, a good bread being made from it. Also serves as cattle fodder; also called Kafir corn.

**Indian Mutiny**, see INDIAN SUBCONTINENT.

**Indian National Congress.** The origin of this Congress may be set down to a suggestion of Lord Dufferin's, and the first meeting was held in 1885 during his viceroyalty, W. C. Bonnerji being the first president. This first meeting was attended by 72 delegates, mostly lawyers, schoolmasters, and journalists. A. O. Hume largely inspired the movement, which was meant to grow into a native parliament. At the first Congress loyalty to England was stressed. The next Congress, a year later, had 440 delegates. The movement was in the beginning essentially Hindu and from the W.-educ. classes; the Muslims had little to do with it, the Muslim League Association being their representative body. In 1916 both bodies combined in a declaration for Indian Home Rule, and from that date it should be regarded as the central nationalist movement in the Indian Subcontinent (q.v.). Under the leadership of Mahatma Gandhi it attracted virtually all the enlightened nationalist minds, from moderate and liberal to extreme left, and became a formidable association. Indeed it can reasonably claim to have laid all the main foundations of Indian independence. It passed through many vicissitudes, and opinions within the Congress were often sharply divided. Nevertheless, it remained the one organisation capable of stimulating mass movements throughout the country, and the readiness of the leaders to risk and suffer imprisonment had a lasting effect on Indian minds. Its only serious and effective challenge came from the Muslim League during the last 10 years or so before independence.

Since independence the Congress has become the major political party in India, and has formed govs. at the centre and in the states. There is no sign yet of any other party strong enough to take over power. See further history sections in INDIA and INDIAN SUBCONTINENT. See Sir H. Lovett, *History of the Indian Nationalist Movement*, 1921; J. T. Gwynn, *Indian Politics*, 1924; B. Patlabhi Sitaramayya, *The History of the Indian National Congress*, 1935; C. F. Andrews and G. Mukerji, *The Rise and Growth of Congress in India*, 1937; Sir R. Coupland, *Indian Politics*, 1936-42, 1943.

**Indian Ocean**, bounded on the N. by Asia (Arabia, Persia, India); on the E. by Indo-China, Sunda Is., Australia, and the meridian of the southernmost point of Tasmania; on the W. by Africa and the meridian of Cape Agulhas; on the S. by the 60th parallel of lat., but the S. boundary is variously given by different authorities. From Cape Agulhas to Tasmania is some 6000 m., and this is the greatest breadth of the I. O. The 2 great bays on either side of the peninsula of

India, the Bay of Bengal on the E. and the Arabian Sea on the W., with its arms the gulfs of Aden and of Oman, belong to the I. O. But the Red Sea and Persian Gulf, which communicate with the said arms by the narrow straits of Bab-el-mandeb and of Ormuz respectively, are separate seas. The Pacific Ocean can be approached from the I. O. by means of the channels between the Sunda Is. and the Timor Sea, whilst the Mediterranean Sea in the NW. communicates with the I. O. by means of the Suez Canal and the Red Sea. There are 2 important straits, Mozambique Channel in the W., separating Africa from Madagascar, and Palk Strait in the E., separating India from Ceylon. The I. O. is dotted about with thousands of is., some of which are of coral formation, as the Maldives, Chagos, and Cocos groups; others, such as the Crozet Is. and St Paul's Is., are volcanic. The chief is. in the W. are Madagascar, Mauritius, Bourbon, the Seychelles, and Socotra, belonging to Africa, whilst the prin. is. in the E. are the Laccadives, Maldives, Ceylon, the Andaman Isles, and Nicobar, belonging to Asia. The prin. large rvs. discharging themselves into this ocean are the Zambesi, Indus, Ganges, Brahmaputra, Irrawadi, Godavari, and Krishna. The bed of the I. O. attains to a depth of about 2000 fathoms in some parts. The mean temp. of the surface water is over 80° F. in all parts N. of 13° S. There are 2 warm currents moving southwards, the Mozambique and Agulhas currents, whilst a colder current in the E., called the W. Australian current, crosses the I. O. moving northwards.

**Indian Orders of Knighthood**, see ORDERS OF KNIGHTHOOD, GREAT BRITAIN AND IRELAND, (6) and (7).

**Indian Pink**, see PINK-ROOT.

**Indian Princely States.** Below are listed about 100 of the more important of the 500-odd principalities with the states into which they have been merged. Some may be of interest as they figure in postage stamp albums. The union of states known as Himachal Pradesh is administered as Union Ter. by the Centre, as are a few other small areas. See also INDIAN SUBCONTINENT, particularly p. 40 and bibliography on p. 41.

Abbreviations: A.P., Andhra Pradesh; Bom, Bombay; H.P., Himachal Pradesh; M.P., Madhya Pradesh; Raj, Rajasthan; U.P., Uttar Pradesh; U.T., Union Ter.

Former State	Now part of
Ajmer	Raj
Akalkot	Bom
Alirajpur	M.P.
Alwar	Raj
Aundh	Bom
Baghelkhand States	M.P.
Bom, Bombay	Bom
Banganapalle	A.P.
Bansda	Bom
Banswara	Raj
Barla	Bom

Former State	Now part of	Former State	Now part of
Baroda	Bom	Mudhol	Bom
Barwani	M.P.	Mysore	Mysore
Bashahr	H.P. U.T.	Nabha	Punjab
Benares	U.P.	Nalagarh	Punjab
Bharatpur	Raj	Nawanagar (Jamnagar)	Bom
Bhavnagar	Bom	Palitana	Bom
Bhopal	M.P.	Pataudi	Punjab
Bhor	Bom	Patiala	Punjab
Bikaner	Raj	Piploda	M.P.
Bilaspur	H.P. U.T.	Porbandar	Bom
Bundelkhand States	M.P.	Pratapgarh	Raj
Bundi	Raj	Pudukottai	Madras
Cambay	Bom	Radhanpur	Bom
Chamba	H.P. U.T.	Rajkot	Bom
Chota Udeipur	Bom	Rajpipla	Bom
Cochin	Kerala	Rampur	U.P.
Cooch Behar	W. Bengal	Ratlam	M.P.
Coorg	Mysore	Rewa	M.P.
Cutch (Kutch)	Bom	Sachin	Bom
Dewas Senior	M.P.	Sangli	Bom
Dewas Junior	M.P.	Sant	Bom
Dhar	Bom	Sawantwadi	Bom
Dharampur	Raj	Shahpura	Raj
Dholpur	Bom	Sirmoor	H.P. U.T.
Dhrangadhra	Bom	Sirohi	Raj
Dhrol	Bom	Suket	H.P. U.T.
Dungarpur	Raj	Surgana	Bom
Faridkot	Punjab	Tehri Garhwal	U.P.
Gondal	Bom	Tonk	Raj
Gwalior	M.P.	Travancore	Kerala
Hyderabad	A.P., Bom, and Mysore	Tripura	Tripura U.T.
Indore	M.P.	Udaipur (Mewar)	Raj
Jafraabad	Bom	Wadhwan	Bom
Jaipur	Raj	Wankaner	Bom
Jaisalmer	Raj		
Jambughoda	Bom		
Jammu and Kashmir	Kashmir		
Jamnagar (Nawauagar)	Bom		
Janjira	Bom		
Jasdan	Bom		
Jawhar	Bom		
Jhalawar	Raj		
Jind	Punjab		
Jodhpur	Raj		
Junagadh	Bom		
Kaparthala	Punjab		
Karauli	Raj		
Kashmir (Jammu & K.)	Kashmir		
Keonthal	H.P. U.T.		
Kishangarh	Raj		
Kolhapur	Bom		
Kotah	Raj		
Kutch	Bom		
Limbdi	Bom		
Lunawada	Bom		
Malerkotla	Punjab		
Manavadar	Bom		
Mandi	H.P. U.T.		
Manipur	Manipur U.T.		
Mayurbhanj	Orissa		
Mewar (Udaipur)	Raj		
Morvi	Bom		

**Indian Shot**, or *Canna indica*, best-known species of its genus, and native of S. and Central America and W. Indies. The plant receives its name from the resemblance of its seeds to shot. The seed yields a beautiful red colour. The root-stocks are very large, spongy, and jointed, and are used in Brazil for poultices in tumours and abscesses.

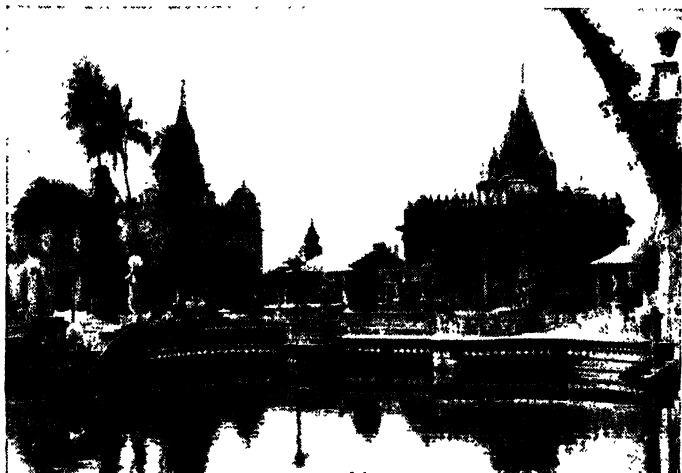
**Indian Subcontinent.** **BOUNDARIES.** The subcontinent marches with Persia, Afghanistan, China, Nepal, and Burma. It extends from 8° to 37° N. lat., and from 61° to 97° E. long. The total area is approximately 1,586,979 sq. m., and the total pop. about 433 million.

**THE COUNTRY.** The peninsula juts out southward from the mainland of S. Asia. It is a triangle in form, the huge mt ranges of the Himalayas forming the base of the triangle, while the apex runs far out into the Indian Ocean. On its W. coast it is washed by the waters of the Arabian Sea, whilst on the E. is the Bay of Bengal. The extreme length is about 2000 m., and the breadth, at its widest part, is about 1700 m., but the peninsula tapers down almost to a fine point, its S. extremity being Cape Comorin. The southernmost



point is in the very centre of the tropical region, its lat. being about 8°, whilst the most northerly point is found well within the limits of the temperate zone, i.e. 37° N. Thus the peninsula experiences extremes of weather. In former days—the days of the great companies—the peninsula was by no means altogether under the sway of the British, for the Dutch, Portuguese, and French had settlements on the coast also. The remains of these settlements may be traced in various towns, and even at the present day Portuguese possessions remain. The chief boundaries are: on the N., the Himalaya Mts, which

The mts soar to a height in places of nearly 30,000 ft. and are continually snow-covered. Nevertheless since time immemorial distinct and well-known trade routes have been known and communications kept up with the countries N. of the Himalayas in spite of the barrier of the mts. The Himalayas form a double boundary to the N. and send out also spurs and offshoots which fill the country between the Ganges and the parent mts themselves. On the W. this offshoot is known by the name of the Suliman Mts; on the NE. it forms the boundary between Burma and India, being known as



JAIN TEMPLES AT CALCUTTA

separate Tibet and China; on the W., the Suliman Mts, which border Afghanistan and Baluchistan; on the S. and SW., the Arabian Sea and the Indian Ocean; on the E., the spurs of the Himalayas, which separate it from Burma, and the Bay of Bengal, an inlet of the Indian Ocean. The geography can be the more easily examined and followed if we divide the whole country up into the 3 natural divs. into which it falls: (1) the mt ranges, i.e. the Himalayas; (2) the riv. plains; (3) the peninsula proper, or the plateau, which goes by the name of the Deccan. (1) *The Himalayas*: This series of mt ranges is the loftiest mt system of the world. The range extends for a distance of 1500 m. round the N. boundary of the subcontinent, and sweeps round in a half bend. The most precipitous face of the mts is the S., forming an almost, but not altogether, impassable boundary. In 2 places the mt range is severed by streams: the Dihang R. in the E. and the Indus in the W.

the Naga Mts. The boundary with Baluchistan is also formed by the offshoots of the Himalayas, but these latter offshoots by no means attain the elevation of the others mentioned. The chief passes of the mountainous div. are the Khyber Pass, the Kurram Pass, the Gomal Pass, and the Bolan Pass. These form the chief means of communication between the peninsula and the NW. See also HIMALAYA MOUNTAINS. (2) *The river plains*: This div. is the richest and most populous part. It extends in a broad belt across practically the widest part of the peninsula running from E. to W. From the beginning of hist. we find this area the continual prey of marauding tribes, who sweep down from the hills to plunder. The importance of the mt system, the Himalayas, may be judged when we see the effect of it on the well-watered plains. The riv. system consists of 3 great rivs.: the Indus, the Ganges, and the Brahmaputra. The Indus rises on the

N. slopes of the Himalayas, sweeps round, and enters at the W. extremity of the range, and waters the Punjab. The Ganges is formed by the amalgamation of the streams which drain the southernmost slopes of the Himalayas, whilst the Brahmaputra rises within easy distance of the Indus in the N. slopes of the Himalayas, flows E. N. of the Himalayas, for some considerable distance, and then breaks through the mts at the extreme E. point of that range. It is therefore to be noticed that the riv. system, of such vast importance to the people, is the drainage of both the N. and the S. slopes of the Himalaya Mts. (3) *The peninsula proper, the southern plateau of India:* Its N. boundary is the Vindhya Mts, a range which stretches for about 800 m. from E. to W., and which has 2 peaks at each extremity. In earlier days this formed a fairly effective barrier between the N. and the S. of the peninsula, since the range varies in height from 3000 to 4000 ft. It has long since, however, been pierced by both road and railway, and communication between N. and S. firmly estab. The 2 sides of this triangular plateau, which has the Vindhya Mts for a base, are formed by the E. Ghats and the W. Ghats. The W. Ghats are on an average higher than the E. The 3 chief rivs. of this dist. are the Godavari, the Krishna, and the Kaveri. These rise in the W. Ghats, but discharge into the Bay of Bengal on the E. coast. The W. Ghats, in fact, form such a strong barrier on the W. coast that the line of mts is unbroken by a riv. gorge. The rivs. which rise in the W. Ghats discharge, as already stated, in the Bay of Bengal, and those which drain the Vindhya Mts into the Gulf of Cambay. Chief amongst the latter may be mentioned the Nerbada and the Tapi. The 3 geographical divs. apply in other respects—in speech, language, race, and characteristics.

**GEOLOGY.** The oldest of these 3 divs. is the peninsula proper. It has been land for many thousands of years; indeed it was already dry when the Himalaya region was covered by the sea, from the Palaeozoic to the Eocene period. This much is proved by the marine deposits of the Himalayas. Whereas the Himalayan region is one of great compression, in which masses of Tertiary rocks of vast thickness are overthrust and folded in the most violent fashion, in the peninsula the oldest rocks consist of gneiss, granite, and crystalline formations and are intersected by bands of transition strata of very ancient but undetermined age. The strata are generally found in an undisturbed state, and are of great antiquity. In great contrast to these regions is the region which separates the 2, and which is known by the name of the Indo-Gangetic plain. This plain is covered with alluvium and sand blown thither by the winds. There is no rise in level between the 2 great rivs. the Indus and the Ganges. The alluvial deposits of the plain have been subjected to frequent examination and prove that there has been a gradual

depression of that region even within comparatively recent times. The chief deposits which are found in the Indo-Gangetic plain are gravel, sand, and clay, together with deposits of peat and forest beds. The Delta deposit has also been subjected to close examination, but its depth at this point cannot be exactly calculated. By boring a depth of some 480 ft was reached, but this was known not even to approximate to the real depth. In one part of the Bay of Bengal, which washes the Delta, the currents have apparently washed away the deposit brought down by the rivs. The depth of



U.N.J.C.E.F.

#### PLOUGHING RECLAIMED SWAMPLAND

the bay here is over 1800 ft, so that, allowing for the fact that the rest of the soundings which are taken in the immediate neighbourhood only give, at most, 10 fathoms, we can deduce that the deposit from the riv. has filled up the bay in that part, and that therefore the alluvial deposit equals the depth of the bay, i.e. about 1800 ft. The alluvial deposit of the plain has been proved by boring to be over 1000 ft in thickness and it appears that the depression of the Indo-Gangetic plain is of recent date, and is probably connected with the elevation of the N. mountainous dist., the Himalayas.

**CLIMATE.** Not unnaturally, in an area which stretches from the tropical regions to well into the temperate zone, many differences will be experienced in the climate. Any extreme of climate, then, either of the tropics or of the temperate zone, will be found. The geographical

characteristics have great influence on climate, especially the huge mt barrier of the N., which prevents any influence of the plateaus of central Asia, and the peninsular point surrounded by the sea in the S. The whole country experiences 3 well-marked and well-defined periods—the cool, the hot, and the rainy seasons. The cool months are experienced during Nov., Dec., Jan., and the early part of Feb. The weather is then at its pleasantest, dry and cool. The hot season which follows belongs, at any rate officially, to Mar. From this time until the middle of June there is a continual rise of temp. which is experienced with greatest severity in the centre and the N. The contrast in temp. during the cool months is between N. and S., but during the hot months the contrast is between the interior and the coast. It is in the interior of Sind and the Punjab that the greatest temps. are experienced during this period. The monsoons or the rainy season usually begin about the middle of June. The rainy season lasts for about 3 months, and during that period rain is generally experienced all over the subcontinent, with the exception of the SE., where temps. fall but rainfall is light. At one place the average rainfall for the year is 426 in. (Cherrapunji). The season which immediately follows the rains is the most unhealthy. Over most of the area rain is virtually finished by Nov., but in the SE. the reflex of the monsoon, turned back from the Himalaya Mts, gives heavy rainfall in Nov. and Dec.

**FAUNA.** The lion, although at one time threatened with extinction, is now carefully preserved. The chief beast of prey is the tiger, which is almost ubiquitous. The man-eating tiger is usually an old animal that has become too enfeebled to be able to catch his ordinary prey, but kills often from sheer desire to destroy, and is a real curse to the country in which he is found. The leopard is found in even greater numbers. The cheetah is another type often confused with the leopard proper. Amongst other wild animals to be found are the bear, boar, wolf, fox, bison, buffalo, elephant, and rhinoceros. Wild goats and wild sheep are found at considerable altitudes in the Himalayas. The domesticated animals are chiefly the cow, ox, and buffalo. The 2 latter are used principally as beasts of burden, the cow being regarded as a sacred animal by the Hindus. Horses are bred, and the breed has been improved by the importation of foreign blood. Donkeys and mules are used very considerably. Sheep and goats are plentiful, as is also the pig, but this latter animal is mainly kept by Christian communities. Monkeys and deer of all kinds abound throughout the country.

The rivs. are infested with crocodiles and alligators. Poisonous snakes abound, the most deadly being the cobra *dâ capello* (the hooded cobra) and the krait. Another dangerous reptile is Russell's viper; specimens of this latter are usually carried about by the native showmen,

who cause them to assume a position as if dancing whilst they charm them with music.

The birds are of the tropical varieties. The birds of prey include the vulture, the eagle (many specimens of which are to be found), and falcons of all kinds. Herons and kingfishers abound, and are much sought after on account of their plumage. Waterfowl are particularly numerous, also almost all the game birds found in Europe, e.g. pigeons, partridges, quail, and duck of many kinds. The jungle



*Director of Publicity, Government of Bombay*

PREPARING A SEEDBED FOR RICE,  
ACCORDING TO THE JAPANESE  
METHOD

fowl are supposed to be the ancestors of our domestic fowl. The supply of fish in sea, lake, and riv. is exceedingly abundance, and indeed forms a very great proportion of the food of the poorer classes.

**FLORA.** In an area covering both the tropic and temperate zones the vegetation is naturally varied and plentiful. Rice has always been the staple product in the S. and centre, and wheat in the N. The products of the tropical regions are tobacco, sugarcane, and spices. Tea is grown on the slopes of the E. Himalayas, and has become one of the main products. In Assam the tea plant is found growing wild. Coffee is grown in the S. parts of the peninsula. The chief trees which are found are the mango, orange, banyan, and bamboo. The teak and various other trees useful for timber are produced in the more hilly dists., whilst on the slopes of the Himalayas are found the cedar, fir, and

pine. Since a forestry dept was set up for the forests, which previously had suffered much from wanton destruction, the trees are now more carefully preserved. The most indigenous flower is the water-lily, and European flowers are found in the greatest profusion at the present time. The whole of the vegetation, however, may be regarded as an extension of that found in the prin. dists. which immediately border on the peninsula, i.e. of China, Persia, and Malaya.

**RELIGION.** The chief religions, with the adherents to each as given by the 1941 census, are as follows: Hindu, 254,930,506 (i.e. 65 per cent of the total pop.); Mohammedan or Muslim, 92,058,096 (i.e. 24 per cent), leaving 11 per cent for the remaining religions, including Christians, 6,316,549; Sikhs, 5,691,447; Jains, 1,449,286; Parsis, 114,890; Jews, 22,480. Besides these there are 25,441,489 persons described as 'Tribes', including persons of the Animist religion; many believe in magic and strive to propitiate impersonal forces. Unspecified communities number 409,877 persons. The most primitive of all these religions is that of the Animist. From the Animist to the Hindu is, however, a great step, the chief characteristics of the Hindu faith being the belief in a large number of gods, in the caste system, and in the cow as a sacred animal. Buddhism, Jainism, and the religion of the Sikhs can be held to be almost offshoots of the original Hindu faith, and, in fact, other beliefs which can be held to differ far more than Buddhism from Hinduism are regarded simply as sects or offshoots of the Hindu faith.

Whereas there are innumerable sects and schisms amongst the believers in the Hindu faith, there are but 2 main sects amongst the Muslims—the Sunnis and the Shias. The Sunnis are greatly in the majority. The original Muslim pop. was found amongst the Mongols and Pathans who invaded the subcontinent as conquering races, and even to the present time it is possible clearly to distinguish the descendants of these conquering races, who were originally Muslim, from the converts of the conquered race who followed the faith of the conquerors, and whose descendants have since become as fervent as the descendants of their previous conquerors.

**HINDU PHILOSOPHY.** The Indian mind, as is evident in Sanskrit literature, is strongly disposed to metaphysical speculation, and this tendency may be seen in the old religious lyrics. In the later age of the hymns the pantheistic idea becomes dominant and finds its outlet in cosmogonic speculation, becoming fully developed in the Brāhmana period. The fundamental conception of this doctrine is expressed in the 2 synonymous terms *brahman*, originally 'power of growth,' then 'prayer' or 'devotional impulse,' and *ātman*, 'breath,' 'self,' 'soul.' The recognition of the essential sameness of the individual souls emanating all alike from the ultimate spiritual essence (*parama-brahman*) involved difficulties for speculative minds, which turned for a

solution of their problems to metempsychosis (*samsāra*), speculations which were not approved by the great body of Brahmins engaged in ritualistic practices. The body of treatises propounding the pantheistic doctrine, the Upanishads, were later admitted into the sacred canon as appendages to the ceremonial writing, the Brāhmanas; and they thus form literally 'the end of the Veda,' the *Vedānta*, but their adherents claim this title for their doctrines in a figurative rather than a material sense, as 'the ultimate aim and consummation of the Veda.' It is difficult to determine the time when the so-called *Darsanas* ('demonstrations'), or systems of philosophy, were first formulated; but they certainly developed from the tenets enunciated in the Upanishads. Among the different systems 6 are generally recognised as orthodox and as consistent with the Vedic religion: *Pūrva-mīmāṃsā* and *Uttara-mīmāṃsā* (*Vedānta*); *Sāṅkhya* and *Yoga*; *Nyāya* and *Vaiśeṣika*—each pair being more closely related to each other than to the rest. See further under SANKARA; SĀṆKHYA; SANSKRIT LANGUAGE AND LITERATURE; VEDA AND VEDISM; VEDĀNTA, UTTARA-MĪMĀMSĀ, OR UPANISHAD; VISHNU; YOGA. For the tenets of the 2 great anti-Brahmanical sects, the Jains and Buddhists, see under BUDDHA AND BUDDHISM AND JAINISM.

**ARMED FORCES.** The partition of India involved a div. of the armed forces between the 2 countries on a territorial basis, and the result was a div. in the proportion of one-third to Pakistan and two-thirds to India. The armed forces of India formerly contained a substantial Brit. element, but India decided to nationalise her armed forces and only a small number of Brit. officers, mostly of the technical and specialist arms, were retained. After partition, regiments and formations of the Indian Army, which for many years had consisted of sub-units comprising men of various castes and creeds, had to be reorganised into regiments containing only representatives of their own dominion. From the end of the Second World War to Aug. 1947 the net reduction in the strength of the Indian and Pakistan armies amounted to 1,648,772 men and women. Of these 32,677 were Brit., Indian, and Pakistani officers, 12,177 were officers and auxiliaries of the WAC (I.), 49,024 were Brit. other ranks serving with Indian and Pakistan armies, and 1,533,570 were Indian and Pakistan ranks, including 64,321 civilians attached to the 2 armies. A total of 8668 army units were disbanded, 61 Indian State Force units returned to the states, and 11 Nepalese contingent units returned to Nepal. The old Indian Army, prior to Aug. 1947, was divided into 3 commands—Northern, Southern, and Eastern. A fourth, Central Command, was raised during the war and disbanded when it was over. Of the Indian divs. which took part in the war 11 were disbanded, leaving 3 infantry divs., 1 armoured div., and 1 airborne div. On 15 Aug. 1947 the army

was divided into the Indian Army and the Pakistan Army. The N. Command was allotted to Pakistan and the S. and E. Commands to India. A new Command, Delhi and E. Punjab Command, was formed soon afterwards. There has also been a considerable expansion of transport services. Other additions to the services were tank transporters, amphibians, and sev. water transport companies. The army of Pakistan comprises 6 armoured corps units, 8½ artillery regiments, and 34 engineer units. Most infantry regiments of the old Indian Army with a Muslim majority were allotted to Pakistan after partition.

The Royal Indian Navy traces its hist. uninterruptedly from the early 17th cent. when the E. India Co.'s Marine was formed. Formerly styled the Royal Indian Marine, the service was reorganised between the 2 world wars on a combatant basis. In 1928 it hoisted the White Ensign for the first time, and in 1934, following the passing of the Indian Naval Discipline Act, was redesignated the Royal Indian Navy. As a result of partition the navy was divided between the 2 dominions. To India went 4 modern sloops, 2 frigates, 1 corvette, 12 mine-sweepers, 4 trawlers, a survey ship, and some auxiliary vessels, with a personnel of 500 officers (of whom about 45 are British) and 5500 ratings. Indianisation of the navy will be completed in 15 years. A large naval estab. is being constructed in Cochin (H.M.I.S. *Venduruthy*) which will include specialist training facilities in gunnery, communications, navigation, torpedo, anti-submarine, electrical, and radar branches. The Pakistan Navy consists of 2 sloops, 2 frigates, 4 mine-sweepers, 2 trawlers, 2 motor mine-sweepers, and some harbour defence launches.

The Royal Indian Air Force had its inception in the recommendations of the Skeene Committee in 1926, and in 1932 the Indian Legislature passed the Indian Air Force Act, the first flight being formed the following year. In 1946 it consisted of 9 fighter and 2 transport squadrons with modern aircraft. On partition 7 fighter squadrons and 1 transport squadron were allotted to India, and 2 fighter squadrons to Pakistan.

*Indian Army (1857-1947).* After the mutiny of 1857, and when the Indian empire was taken over by the Crown, it was decided that the European army in India should be amalgamated with that of the Crown. Formerly, in the days of the E. India Co.'s control, the army was organised on a presidential basis, a staff corps being formed in 1861 for each of the presidencies. This system for a time worked well, but finally the old presidential system of organisation was done away with, and the whole Indian Army was reorganised under the command of a single commander-in-chief. The staff corps became the staff of the Indian Army, and the basis of organisation was one N. and one S. command, together with a separate command for Burma, all under

the control of a commander-in-chief of the Indian Army. Previous to this, and during the gov. of Lord Dufferin, the incident usually known as the Penjdeh scare (over the Russian occupation of that and another place in Afghanistan) took place, and led incidentally to the formation of the Imperial Service Corps. The princes of India volunteered to give pecuniary aid to the gov.; this was at the time rejected, but they were later informed that a proposal to place a certain number of native troops in each state at the disposal of the gov., to be trained, drilled, and officered by Brit. officers, would be welcomed. This was done, and gave rise to the Imperial Service troops, whose value and efficiency were tested and proved. In 1939 the defence forces of India comprised units of the Brit. Regular Army (60,000), the Indian Native Army (140,000), the Indian Army Reserve (35,000), the Indian State forces (about 35,000), the Auxiliary Force (about 24,000), and the Territorial Force (18,000). For police duties and frontier service the regular military was supplemented by frontier militia and local levies. The military forces were organised as the N., S., E., and W. Commands and the Burma Independent Dist., there being a number of dists. and independent brigades in each command. The Field Army was organised in four divs. and five cavalry brigades.

The Brit. Regular Army in India was paid by the Indian Exchequer and was organised in divs. and brigades with the Indian (Native) Army in the proportion of 1 Brit. to 3 Indian battalions. The Artillery Corps at this time was 13,000 strong, organised into 1 field and 6 mt regiments besides various small units—altogether a score of pack batteries and a number of field and garrison artillery batteries, the latter with a proportion of Indian drivers. The tank corps units consisted exclusively of Brit. personnel. The Auxiliary Force was organised in 1920 as a second line to the permanent garrison, and was formed by voluntary enlistment of men of Brit. extraction. The Territorial Force, also organised in 1920, was a militia force, and, like the Territorial Army of Britain, was intended to be a second line replica of the regular army in time of war. The Indian State forces were raised and maintained by the Indian states and trained under the supervision of Brit. officers. In the native army the composition of the regiments was very varied indeed. The troops consisted of men of all races and religions, and these varied naturally with the position of the command. In the ranks of the native army in India were found Pathans, Sikhs, Punjabis, Mahrattas, Hindus, Gurkhas, together with representatives from almost every race to be found in India. The terms of enlistment were general, and although the native troops had not, up to 1939, ordinarily served overseas, nevertheless they enlisted for service within or without the Brit. Empire, and could be taken overseas if necessary. During the First World War, 1,215,000

officers and men of the Indian Army were sent on service overseas from India, the number of Indian troops being 570,000. The total Indian casualties were over 158,000 (deaths, 73,432; wounded, 84,715). Between the world wars some Indian units served in Iraq and at colonial stations, their maintenance being defrayed by the Brit. exchequer. The infantry and cavalry of the old Indian Army were organised into double companies, each commanded by a Brit. officer, together with a Brit. junior officer. The native officers, risaldars in the cavalry and subahdars in the infantry, issued all orders to the native troops. The senior officer was called the risaldar-major, whilst to each half company was usually attached a junior native officer, who was called a jamadar. A reorganisation of the Indian Army was begun in 1921 to meet defects brought to light in the 1914-18 world war. This consisted of grouping regiments for training purposes, and in 1922 the system was carried a stage further by converting the groups into regiments in the case of the Indian infantry and Pioneers. The chief reform, however, was that of 'Indianisation', i.e. having units officered entirely by Indians and without any Brit. cadres. The Indian Territorial Army was also Indianised (see *The Army in India and its Evolution*, 1924, issued under the authority of the Gov. of India). In the Second World War the Indian Army fought in Burma, N. Africa, Italy, and the Middle E., winning over 5000 awards, including 31 V.C.s—an Empire record surpassed only by the army of the U.K. Exclusively recruited on a voluntary basis, the strength of the Indian Army at its peak was 2,250,000, a feature of this expansion being that of the Royal Indian Artillery, which was increased to 84,000 all ranks, and consisted of 12 mt, 11 field, 7 anti-tank, 2 medium, and 20 anti-aircraft regiments. The airborne forces of the Indian Army took part in operations leading to the capture of Rangoon (3 May 1945). The Indian Army's total casualties in the Second World War were 179,935 (killed, 24,338; missing, 11,754; wounded, 64,354; and 79,489 prisoners of war, chiefly on the Burmese front). By 30 Sept. 1946, in the process of demobilisation, over a million men had left the service, the ultimate peace-time strength of which had not been finally determined when the partition of India consequent on independence involved the complete reorganisation of the armed forces of India, and also the disappearance of the old Indian Army.

*Royal Indian Navy.* In 1926 it was decided to establish a Royal Indian Navy (on a combatant basis) the nucleus of which was to be provided by the former Royal India Marine. This navy, at the close of the Second World War, included 6 modern sloops, 3 frigates, 2 corvettes, 16 minesweepers, a survey vessel, and 6 modern trawlers. There were also a number of auxiliary vessels. In 1946 naval strength was reduced by demobilisation to 1000 officers and 10,000 ratings.

It was decided in the same year to purchase 3 cruisers from the R.N. for the Royal Indian Navy.

*Royal Air Force of India.* This had its beginnings in the Indian Air Force Act (1932), the first flight being formed at Karachi in 1933. On 12 Mar. 1945 the king approved the designation of 'Royal' in recognition of the war services of the force. In 1946 it consisted of 9 fighter and 2 transport squadrons with modern aircraft.

*HISTORY.* In an area so vast and so diverse, not unnaturally hist. becomes a matter of some complexity and difficulty, and it is only with the widest movements that this sketch is concerned. It is convenient to begin with the first invasion of the subcontinent by the Aryans, who came from the NW. and who lived for some time on the S. slopes of the Himalayas before they finally entered the great Indo-Gangetic plain and drove back the Dravidian pop. into the peninsula proper to the S. These invaders had a settled system of civilisation and a fixed religious system. They were well acquainted with the various arts, and above all they brought with them the *Rig-Veda*, the Hindu hymnal that estab. the antiquity of their origin (see also RELIGION above and INDIAN ARCHITECTURE; INDIAN ART; INDIAN LANGUAGE; INDIAN LITERATURE). They formed states in the great plain, and they built great tns; the sites of many of these remain down to the present day (e.g. Benares, Aryan Baranesi). Their social system divided them definitely into 4 divs.: the Brahmins, or the priests; the Kshatriyas, or nobles; the Vaisyas, almost the modern middle class; and the Sudras, or serf class, composed principally of non-Aryan peoples who were the slaves of their conquerors. Gradually the civilisation and the religion of these people became corrupted, and about the year 500 bc there lived the great reformer Buddha (q.v.). At the same time occurred the rise of Jainism, a religion which was founded by Vardhamana Mahavira, and has often been regarded as an offshoot of Buddhism. But Buddhism never superseded entirely the older faith of the Hindu, the Brahmanism which had been introduced with the coming of the Aryans, and although for a time Buddhism appeared to have gained the upper hand, ultimately the original religion became the more prominent. It is with the invasion of Alexander the Great (q.v.) that the real hist. of the subcontinent with relation to the outside world may be said to begin. Alexander's campaign was confined, however, to the Punjab and to Sind, and although he made no definite settlement we know that he planted cities and left Gk garrisons behind him. On his death his conquests passed to Seleucus. Chandragupta, Emperor of India E. of the Indus, was contemporary with Seleucus. The 2 emperors made an alliance, and for a time the relations between the Gk and the indigenous kingdoms were well estab.

As records grow more certain and continuous, they tell of periods in which great

Indian dynasties acquired power over a large part of the area. Thus there is the Maurya empire (c. 321-184 BC) with Chandragupta and Asoka as its outstanding rulers, and there is the Gupta empire (c. AD 320-500), the golden age of Hindu culture. But none of these empires extended over the whole subcontinent, and beyond their borders princes and chieftains, powerful and weak, were in constant rivalry and strife. Our knowledge of the system of gov. of Chandragupta is due to the fact that the ambassador to his court by Seleucus, Megasthenes, wrote an account of the court, gov., and institutions. The grandson of this great king was Asoka, the champion of Buddhism. From the inscriptions and rock edicts which Asoka caused to be placed throughout his empire we learn that he ruled practically the whole subcontinent with the exception of the extreme S. of the peninsula. During his reign Buddhism became the predominant religion, but after his death the empire began to decay, and near the beginning of the 2nd cent. BC the Maurya dynasty came to an end. Two other dynasties may be here noticed, the Sunga and the Andhra, but of neither is very much definitely known. The Gk provs. had in the meantime become independent kingdoms under Gk rulers, and in the middle of the 2nd cent. BC the W. Punjab became for a time part of the Parthian empire.

In the middle of the 2nd cent., too, central Asian tribes began to invade. The first of these was known as the Sakas, who estab. themselves W. of Kandahar, and gave to the country the name of Sakastan. Another was the Kushan, and in the 1st cent. AD the chief of this tribe estab. a great kingdom in the NW. The empire of the Kushans does not seem to have come to an end until the beginning of the 4th cent. of the Christian era, when the Gupta dynasty was estab., and almost immediately began to prosper. It was founded by a second Chandragupta, who extended his kingdom along the valley of the Ganges, and was increased by his son, Samudragupta, who conquered all the provs. of the Ganges, and estab. himself in the S. as well. Under Chandragupta II fresh additions were made to the empire, but finally, about the year 480, the Huns from central Asia broke up the empire and estab. themselves in the N. But at the beginning of the 6th cent. the Huns were beaten by a Gupta king. The last indigenous prince was Harsha, who ruled with a strong hand the whole of the N.

After the death of Harsha there follows a confusion of dynasties and kings, whom it is impossible to mention in detail. But gradually in the N. the provs. began to find some shape and form under the gov. of the Rajputs, or members of the ruling families. At the end of the 9th cent. the most important kingdom was that of Panchala, whilst the Pala kings ruled in Bengal, and another important dynasty was that of the Chauriel. Until the end of the 3rd cent. the Andhra dynasty ruled

the Deccan, and this was succeeded by that of the Chalukya Rajputs, which lasted until the beginning of the 7th cent., and was then merged in the Chola dynasty. Early in the 8th cent. Arab armies conquered Sind.

The close of the 10th cent. witnessed the beginning of the incursions of the Muslims. The great Muslim empire originated in the setting up of 2 small independent Muslim states in the N. The founders of both these states were originally slaves, and they were bitterly opposed by the Rajputs. In 987 the Sultan Mahmud of Ghazni ascended the throne of the Amir of Sabuktigin, and commenced a holy war against the non-Muslims. In a great number of campaigns he gradually increased his power until it extended practically to the Deccan. Dynasty after dynasty settled themselves at Delhi, and gradually spread into the Deccan itself; amongst the Muslim states formed in the Deccan the more important ones were Golconda and Bijapur. The beginning of the 13th cent. witnessed the incursion of the Mongol chieftain, Genghis Khan. The Mongol hordes, however, although they attained considerable power in the NW., were nevertheless unsuccessful in their attempts to penetrate into the plains, and these attempts were beaten back principally by the Muslims of the N. In 1398 came the great invasion from central Asia of Timur the Lame (usually spoken of as Tamerlane), who swept all opposition before him, and after perpetrating a fearful massacre before Delhi caused himself to be proclaimed Emperor of India. Between 1000 and 1500 a succession of Afghan invaders drove right across the N. Muslim dynasties ruled at Delhi from the Punjab to Bengal; and the new conquerors pushed farther S. than any of their predecessors. Five separate Muslim kingdoms were set up in the Deccan. Only S. of the R. Kaveri was the Hindu pop. saved from the invader. Finally, from 1505 onwards, over the same NW. passes, came the Moguls. At the beginning of the 16th cent., however, appeared the greatest of all the conquerors in the person of Baber. He was a Mongol descended from Taimur and Genghis Khan. In the year 1526 he defeated the army of the Sultan Ibrahim in a battle fought to the N. of Delhi, and was proclaimed Emperor of India. From this time dates the succession of Great Moguls who ruled, at least nominally, from the time of Baber until 1707. For a time Delhi alone remained in the hands of the conqueror, but gradually the whole of the N. was conquered. The greatest of all the Mogul emperors was Akbar the Great (1556-1605), to whom the whole of the subcontinent, with the exception of the very S., owed allegiance. His legal code, the brilliance of his court, and the magnificence of the architecture of his reign are all worthy of note. Akbar was far more liberal in the matter of religion than the contemporary sovereigns of Europe; but for one reason or another multitudes of

Indians, especially in the N., accepted their Muslim conquerors' creed; and so 'beneath the surface of unity the soul of India was divided between 2 faiths or 2 philosophies of life, a gulf which seems to-day almost as deep as when it was first cut so long ago' (Sir R. Coupland). The last of the great Mogul emperors was Aurangzeb, who died in 1707, marking the final break-up of the Mogul empire, on whose ruins the Mahrattas formed an empire which was the greatest and most important in the middle of the 18th cent. On the break-up of the Mogul empire the following practically independent states sprang into existence: those of the Nawab of Oudh, the Nizam of Hyderabad, the Nawab of the Carnatic, and Hyder Ali at Seringapatam. Little by little the provs. of the Mogul empire fell away from their allegiance. The Deccan became independent, Oudh followed suit, Bengal, Behar, and Orissa, though nominally still dependent, became to all intents and purposes independent. A general revolt of the provs. took place, and to make the confusion worse confounded a foreign invader in the person of Nadir Shah, Shah of Persia, appeared in the land. The power of the Mahrattas had increased, and they were now the greatest power. The throne at Delhi was still occupied by descendants of the Mogul dynasty; but they were weaklings and were only nominal kings. The shah, having plundered Delhi, returned home to Persia, and the land was again free of foreign invaders. Nevertheless it was now but a conglomeration of independent states. The Punjab was annexed in 1761 by the Mahrattas, who were finally defeated by a coalition of Muslim princes who feared the growing power of the Hindus.

*The first European settlements and the power of the British in India.* Europeans had for a long time known of the existence of the trade route via the Red Sea, but the estab. of a Muslim power in Egypt had effectually closed that route to trade, and the result was that it had been necessary to seek some new way of approach. Towards the end of the 15th cent. many attempts were made to 'double the Cape,' and finally the task was accomplished by Vasco da Gama, who arrived by that route at Calicut in 1498. After this the Portuguese made many settlements on the W. coast, the most important of all being Goa. But towards the end of the 16th cent. power in the E. began to pass into the hands of the Dutch. The Portuguese were driven from Ceylon, and the Dutch also estab. themselves firmly in the Malay Peninsula. The next great struggle which ensued was that between the Brit. E. India Co. and the Dutch. The latter were finally driven out altogether. England first appeared to claim a share in the spoils of the E. in 1600, when she obtained a charter for her E. India Co. (q.v.), and her first factory was estab. at Surat in 1608. Trade, and trade alone, was the E. India Co.'s objective; and trade moreover obtained by peaceful enterprise and agreement, not by force. The Company's

first act was to send an envoy to the Mogul emperor at Delhi to secure his permission to establish a trading-post on the coast. The envoy was followed by a full-scale ambas. Sir Thomas Roe (q.v.), whose title to fame is founded on his formulation of the Company's policy, which was not to waste money on military adventures or in acquiring ter. but to 'seek profit at sea and in quiet trade' (P. E. Roberts). In 1639 the site of Madras was bought, and in 1661 Bombay passed as the dowry of the queen of Charles II into the hands of the Company. In 1690, after many failures, a settlement was made on the Hugli, which developed into the city of Calcutta.

The French appeared later than the English. A company with somewhat similar objects to that of the E. India Co. was founded in 1664. Their most important settlement was at Pondicherry, which they retained until 1754. Although, as will be shown, they made a great struggle for political power, they failed very largely because of the lack of interest of the home gov. By the time of the collapse of the Mogul empire the E. India Co. had acquired 3 prin. trading posts—at Madras, Bombay, and Calcutta; and, in order to protect these posts from pirates and from European rivals, forts were built and bodies of Indians known as 'sepoys' enlisted and drilled under Brit. officers. The life struggle for supremacy between the French and the British commenced during the war of the Austrian Succession (1740-8). During this war the French had been the more successful, and had in fact captured Madras. The treaty which ended the war, however, ordered the restoration of all conquests, and so Madras again passed into Brit. hands. With the outbreak of the Seven Years War (1756-63) rivalry between France and England was renewed. A series of succession questions in the Deccan had given both a pretext for joining in the internal quarrels, and now the attention of the Brit. commander, Clive, was called from the Deccan to the N. The succession of Surajah Dowlah to the throne of Bengal had brought about the Black Hole of Calcutta (q.v.), after which Clive came N. to revenge the massacred British. The battle of Plassey (1757) ensued, and with the victory of the Brit. company troops at that battle began the final supremacy of the British in the sub-continent. Three years later, at Wandewash, Sir Eyre Coote finally broke the power of the French in the Deccan.

The throne of Bengal had passed into the hands of the nominee of the Brit. Company, and out of gratitude favour after favour was heaped upon them. But for a time the Brit. company still regarded the victory which they had won as merely a means of definitely establishing a monopoly and *not* an empire. Clive, when he returned from home in 1765, realised that it was possible to build up a great Brit. empire on the ruins of the fallen Mogul empire, but he advised against taking the risk which was necessary.



The Company collected the revenues of Bengal, Bihar, and Orissa, but as the vassals of the nominal emperor at Delhi. Clive during his administration pressed on many reforms which were necessary, but was sadly hampered by the fact that any reform which entailed a diminution of dividend was not popular with the board of directors. Finally, in 1767, he returned to England, and was later bitterly attacked. The House of Commons, however, recorded its appreciation of the services which he had rendered; but worn out by the attacks and by ill health, he committed suicide in 1774. Clive may well be regarded as the founder of Brit. greatness in the subcontinent; he had witnessed the Company become the sovereign of Bengal, Bihar, and Orissa. In the meantime the British had been left with a clear field after the treaty of Paris (1763). The Portuguese, the Dutch, and now the French had all disappeared as rivals to the power of Britain. Henceforth the British could consolidate their power with little fear of interference from any of the European powers. The Brit. power was threatened by Hyder Ali of Mysore, but the victory of Coote at Porto Novo again asserted the power of the British, which had seemed to fall at the end of the first Mysore war.

Between the years 1767 and 1772 the Brit. ideas about governing the country may be regarded as being in a state of flux. The first results of Brit. conquest in the 18th cent. were deplorable, because in Britain both politicians and commercial men had failed to grasp the significance of the conquest. Clive had realised all that was implied in the 'sovereignty' of Bengal, and in a letter to the elder Pitt had suggested that the Brit. Gov. should oust the Company and shoulder the task. It took the Company some time to realise that it was a sovereign power, but finally, in 1772, it appointed Warren Hastings as governor of Bengal. There are points which are debatable in the career of Warren Hastings, but here it is necessary only to mention the events without discussing ethics. Hastings certainly reformed the revenue collecting system, estab. civil and criminal courts, and made large economies. He sold certain ter. to the nawabs of Oudh, but by so doing set up Oudh as a buffer state between the British and the Mahrattas, and later, when he gave the nawabs of Oudh help in the Rohilla war, he did so because he realised that the Rohillas were a real menace to the British. In 1775 Lord North's gov. passed the Regulating Act, which gave the home gov. certain powers over the officials of the E. India Co., and instituted a supreme court of justice and a council of war. Warren Hastings became the first governor-general, but for a time the hostility of his councillors prevented the operation of his schemes. During his period of power hardly any annexations had been made. Some ter. had been gained round Bombay, but on the whole he had been opposed to annexation, otherwise he would probably

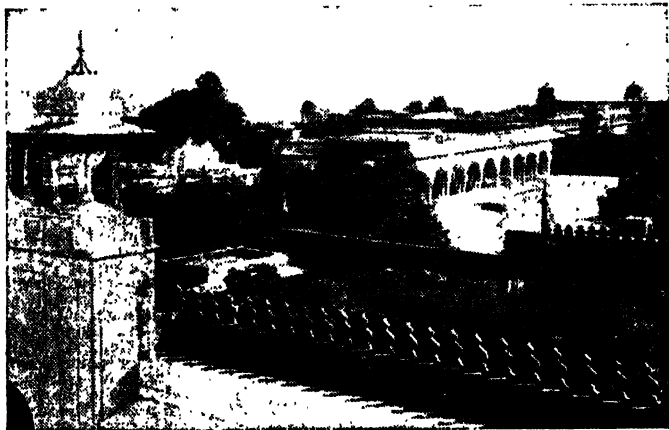
have annexed the ter. which he sold to the nawabs of Oudh.

In 1784 Pitt's India Bill was passed. The real power was now in the hands of the Crown, although nominally it still remained with the Company, a state of affairs which existed until 1858. Lord Cornwallis, both Governor-General and Commander-in-Chief, had power of veto to an extent never employed by Warren Hastings. He busied himself at first with internal reform, and estab. a proper system of civil service for the servants of the Company. He was responsible in 1793 for the permanent settlement of Bengal, Bihar, and Orissa; by this the assessment of the revenue was declared perpetual. Legal reform also occupied his attention. The attack by Tipoo Sahib on Travancore, however, necessitated the interference of Cornwallis, and the war ended by the cession of half of Mysore to the Company. The ter. acquired by the Company went to form the beginning of the Presidency of Madras. Cornwallis left in 1793, and was succeeded for a time by Sir John Shore, who, 5 years later, was succeeded by Lord Wellesley, probably the greatest of all the governors-general after Warren Hastings. In 1799 the fourth Mysore war broke out, undertaken by Wellesley with definite aims. It was short and in the course of it Tipoo Sahib was killed. Wellesley was an open advocate of a policy of annexation, and by his system of setting up subsidised princes did much to extend the power of Britain throughout the whole peninsula. In 1803 the second Mahratta war broke out, and Gen. A. Wellesley (brother of the governor-general) won the battle of Assaye against overwhelming odds and practically broke the power of the Mahrattas. Almost at the same time Lake defeated another army and entered Delhi. The troops of Sindia were utterly defeated, and the prince accepted a subsidy from the hands of the British. The aggressive policy of Wellesley, however, led to his recall, and Cornwallis was sent out for a second term. But Wellesley had been instrumental in causing many reforms, in establishing a school for civil servants, and in bringing the finances of the country into a sound condition in spite of the expenses of his numerous campaigns. During the 18th cent. the power of the Sikhs had been increasing continually in the Punjab, and they now, under their leader, Ranjit Singh, put forward claims, that could not for one moment be admitted by the British, to ter. in the Punjab itself. A Brit. army was sent against Ranjit Singh, but no fighting took place, the menace being sufficient. Under Lord Minto's governorship missions were dispatched to Persia and Afghanistan to combat Fr. influence, whilst at the same time attacks were made on the Fr. colonies of Mauritius and Ile de Bourbon, the Dutch colonies in Java also being attacked and captured. The monopoly of the E. India Co. was abolished in 1813, except so far as trade in the China seas was concerned. The period between the departure of Wellesley and the arrival

of the Marquess of Hastings was one of stagnation. Hastings, however, reverted to the policy of his predecessor. During his governorship the Gurkhas were defeated and part of their ter, of Nepal was annexed; and the war against the Pindaris widened into a war with the Mahrattas, much of whose ter, in the neighbourhood of Poona was annexed.

Hastings left in 1823. Brit. supremacy over the native states was finally established, and the whole peninsula was ruled by the British. But an independent kingdom had been set up in Burma, Afghanistan had developed into a really strong state, and under Ranjit Singh the state of the

Gujarat (1849) delivered the Punjab to the British. In 1852 Lower Burma was annexed during the governor-generalship of Lord Dalhousie and in 1856 Oudh was also annexed. Nagpur and Jhansi also passed into the possession of the British about the same time. Between 1823 and the outbreak of the mutiny many social reforms had taken place under Brit. rule. The country had been developed, education had been encouraged, canals had been developed, the telegraph and railways introduced, a system of cheap postage had also been initiated, and suttee had been abolished. This was a practice of Brahman women by which a widow committed



THE FORT, AGRA

*Canadian Pacific*

Punjab had been unified and strengthened. Almost immediately there were clashes between Britain and these states. The Burmese war resulted in the loss of some ter, to the British. Afghanistan, regarded as an important buffer state between Russia and Brit. India, became for a time the centre of the storm. The Persians, influenced by the Russians, interfered there; the British, to protect their interests, were forced to intervene. They were at first successful, but a later Afghan rising drove them out of Afghanistan, and of the 4000 British who left Kabul only 1 arrived safely at Jellalabad. An expedition was sent to Afghanistan to avenge this disaster; Kabul was stormed, the prisoners released, and the British evacuated the country. In 1843 Sind (Sindh) was annexed by Sir C. Napier, and the next war broke out on the death of Ranjit Singh, 'the lion of the Punjab.' Two wars were fought with the Sikhs, the first in 1846, the second in 1848-9. The Sikhs of the Punjab were the most formidable enemies the British had yet met in the subcontinent, but the victory at

suicide on her husband's funeral pyre. These reforms had been especially noticeable during the administration of Lord Dalhousie.

*Indian Mutiny.* The Indian Mutiny may be traced to many causes. Inventions such as the telegraph were not understood by the native mind, and railway travelling upset the ideas of caste. Other causes were the distrust of the Brit. policy of annexation, and especially great were the military causes. The Sepoys believed themselves the essential part of the Brit. military power. The campaign in Afghanistan and the late Crimean War had shaken their faith in Brit. power; and a report that the new cartridges were smeared with the fat of the cow and the pig, thus defiling both Hindu and Muslim, supplied the immediate spark. The mutiny broke out on 10 May at Meerut and spread to Delhi. Within 3 weeks the whole Ganges basin was aflame, and at Delhi the representative of the royal line had again been proclaimed Emperor of India. There were less than 40,000 Brit. soldiers to hold in check a pop. of wellnigh

100,000,000. Cawnpore and Lucknow were besieged. But Lawrence held the Punjab in check; a small Brit. force advanced against Delhi. Havelock marched to the relief of Cawnpore with a small force, and Lucknow held out. In Sept. the tide turned at last. Delhi was stormed; Lucknow was relieved by Campbell in Nov., although the city was not finally taken until the following year. In 1858 the mutiny may be said to have ended, although the Central Provs. were not pacified until the following year. The chief results of the mutiny were that the rule of the E. India Co. came to an end; in 1877 Queen Victoria was proclaimed Empress of India, and the governor-general was known henceforward as the viceroy.

*The Indian empire established.* After the mutiny there followed a period of peace broken only by the constant suspicion of Russian intrigue in Afghanistan. This led in 1878 to the second Afghan war. The amir was deposed, and his successor promised to receive a Brit. resident, who was shortly afterwards murdered with his escort. This resulted in the famous march of Roberts from Kabul to Kandahar, and eventually an amir who was favourable to the British was installed. Quetta and the S.E. dists. of Afghanistan were annexed after this.

In 1885 Upper Burma was annexed as a result of the third Burmese war, and the Indian empire was practically completed. The 'Morley-Minto' constitutional reforms may be briefly noticed. These enlarged the legislative councils, accepted the elective principle, and gave Indians a direct share in administration by admitting an Indian member to the executive council in each of the provs. and at the centre. But if Lord Morley, then secretary of state for India, was the leading exponent of the Liberal tradition, he did not intend that these reforms should lead directly or indirectly to the estab. of a parl. system in India. Opinion in England was not then favourable to democratic institutions for a country which was anything but homogeneous. Legislative councils were adopted for each prov., and the electoral system developed in the constitution of the Legislative Council of the viceroy. After his coronation in 1911 George V visited India and held a Coronation Durbar at the beginning of 1912, this being the first visit of a Brit. sovereign to the Indian empire. At the Durbar the king-emperor announced that Delhi would be the new cap. of India.

From the time of the Morley-Minto reforms embodied in the Councils Act of 1909, it is generally true to say that the hist. of the I. S. is a hist. of political conflict between the nationalist politician, notably of course the party called the Indian National Congress, and the Brit. Gov.; it is also the hist. of gradual constitutional development from a Brit. possession to 2 fully independent reps. within the Commonwealth. In addition, as the prospect of independence became more real, it is a hist. of the extension among

Muslims of the fear that, as a minority community, they would be swamped and disregarded by the Hindu majority; hence the ultimate demand for the partition into India and Pakistan.

This is not to suggest that during this period there was not a steady progress and development economically, industrially, and socially. But the rate of such development was constantly under severe criticism by those seeking an independent solution of the country's problems; and indeed, however fast it had been it could never have made development at foreign hands acceptable to the rapidly growing nationalistic sentiment.

The prin. political landmarks in this period were:

(i) The Government of India Act, 1919, which followed the Montagu-Chelmsford Report.

(ii) The Government of India Act, 1935, which followed the Simon Commission Report (1930) and the Round Table Conferences in London of 1931, 1932, and 1933.

(iii) The Indian Independence Act, 1947.

*The Government of India Act, 1919.* The Preamble to the Act embodied in substance a declaration made in 1917 by the Brit. Gov. that their policy was to increase the association of Indians in every branch of the administration and that their ultimate goal was 'responsible government in British India as an integral part of the British Empire.' This statement was regarded at the time in Britain as marking a noteworthy advance in political thinking. Needless to say it was not so regarded in the subcontinent, where the nationalists took particular note of the phrase 'British India,' which excluded the Princely States, and of the words 'an integral part of the British Empire,' a matter upon which in the nationalist view a decision could only be taken by an independent Indian Gov. Briefly, the main provisions of the Act were designed to produce a curious half-way house towards a fully parl. gov. on the Brit. model, and in retrospect it may be that the most significant was the express provision for another full inquiry in not more than 10 years' time.

In the Prov. Gov. the diarchic system was estab. by which certain subjects, e.g. law and order, were 'reserved' to the Governor-in-Council, while other subjects, e.g. education, agriculture, were 'transferred' to ministers appointed by the governor from among the elected members of the Legislative Councils (i.e. prov. parliament). In the selection of individuals as ministers, as also as members of the Governor-Council, the governor was not confined to the majority party, and he had power to certify an Act or a budget or other demand for money which the Legislative Council rejected. In the Central Gov. it was provided that 3 members of the Viceroy's Council of 7 should be Indians, and 2 legislative chambers were estab., the lower the Legislative Assembly, the upper the

Council of State. In both the majority of members were elected and non-official. The viceroy retained over-riding powers similar to those exercisable by prov. governors and was also head of the Chamber of Princes, the relations between whom and the Brit. Gov. were not susceptible of discussion in the legislature.

*The Government of India Act, 1935.* Although the Act of 1919 can be said to have worked with varying degrees of success in different parts of India, it was never acceptable to the Indian National Congress, who used every means at their disposal, including Mahatma Gandhi's perfected technique of civil disobedience, to bring it into disrepute and to render it unworkable. Many of the Congress leaders, including Gandhi and Jawaharlal Nehru, spent periods in prison. In 1928, in anticipation of the coming review, the Simon Commission was appointed and visited India. It was called upon to report 'whether and to what extent it is desirable to establish in British India the principle of responsible government or to extend, modify, or restrict the degree of responsible government now existing.' The commission was boycotted in India by the Congress and certain other organisations. The report was presented in 1930, and considered at 3 round table conferences in London between 1931 and 1933 in an attempt to find the greatest possible measure of agreement. Finally a White Paper was presented to Parliament and exhaustively discussed by a joint committee of both houses. The Act was passed in Aug. 1935.

Apart from a considerable extension of the franchise, which even so embraced only 14 per cent of the pop. of Brit. India, the 2 major features of the Act were autonomy for the prov. govts.—now increased to 11 by the separation of Sind from Bombay and Orissa from Bihar—and a federal gov. at the centre. Emergency and special powers were reserved for the prov. governors and the governor-general. A minor point of interest is that Aden was separated from India and became a crown colony.

Possibly the most remarkable feature, in retrospect, of the 1935 Act is that while it came into force in the provs. in 1937 it never came into force at all in the Central Gov. Thus for 10 years the extraordinary position prevailed that, fundamentally, 2 widely differing constitutions co-existed in India, the 1919 Act at the centre and the 1935 Act in the provs. The prin. reason was that the princes, who at the London conferences had broadly supported the idea of a Federal Central Gov., found that in practice there were objections greater than they had recognised. They were therefore increasingly reluctant to signify their accession, and since the Act provided that Federation should not be complete until half the princes had acceded it was not possible to proceed without that degree of consent. The outbreak of war in 1939 put an immediate stop to the persistent attempts to persuade them, and of course

produced a new constitutional situation in which much of the business of gov. was conducted under emergency powers. Nevertheless it is remarkable, and a tribute to the administration, both in the provs. and at the centre, that while the requirements of finance, industry, and commerce—to mention only a few subjects—necessarily involved close co-ordination between the provs. and the centre, the differences in their constitutional authority did not, by and large, precipitate any major clash.

It was only with grave misgivings, based partly upon a mistrust of the special powers reserved to governors and upon the expected hostility of the permanent civil services, and partly upon doubts whether the new constitution could conscientiously be regarded as a step towards their unchanged goal of complete independence, that the Congress party agreed to take office in those provs. (the majority) where they had a clear electoral mandate. This they did in mid 1937. The assumption and exercise of power considerably modified their views, not of course upon their ultimate objective, but upon the progress that could be made. In a great many ways they displayed an aptitude for gov. surprising in a party which, from its inception, had been marked for opposition. In the larger provs. in particular they began to lay sound foundations for much of the social progress which has since taken place. Nevertheless the judgment of hist. can hardly fail to be that in one vital matter they fell into an error which changed the whole face of the subcontinent. They gravely underestimated—or indeed ignored—the suspicion and mistrust of the Muslim minority of the Hindu majority. There had indeed at various times been theoretical discussion of Muslim areas and partition schemes—all of them anathema to the Indian nationalist thinking in terms of All-India. But it can hardly be denied that it was between 1937 and 1939, owing largely to Hindu Congress failure to satisfy Muslim susceptibilities, that the idea of a Muslim state finally crystallised, and the opportunity to demand it was presented to perhaps the one man with the outstanding authority and ability to do so, Mr Jinnah (q.v.).

*Second World War and 1939–47.* It is no criticism of the martial quality of the Indian fighting services, whose record is second to none (see under INDIA and PAKISTAN), to say that the main problems and preoccupations of India during the Second World War were political. Public opinion at the outbreak of war, and indeed throughout its course, showed sharp divergencies and changes upon the attitude India should adopt. Even Mahatma Gandhi, without at any time receding from his faith in absolute non-violence, found great difficulty in reconciling his political aims with his emotions, and was not the architect of some of the more extreme political demands upon Great Britain. In Oct. 1939 the working

committee, i.e. the central executive, of the Congress issued instructions to all Congress ministers to resign. The instructions were obeyed, though in some cases without enthusiasm. Thereafter, throughout the war, the provs. were under governor's rule, except for those where Muslim League ministries were in power. In 1942 the Jap. participation in the war and the immediate threat to Indian ter., coupled with the general confusion of public thought about the war in India, posed a serious threat to the Brit. Gov. in its conduct of the war. An offer was therefore made, through a visit by Sir Stafford Cripps, of complete self-gov. when the war was over. It was made clear that Indians were to frame their own constitution and that thereafter Indian independence would be complete, even to the extent of leaving the Commonwealth if desired. The offer was rejected for differing reasons by both the Congress and the Muslim League. It seems clear that some Indians at least did not foresee the defeat of the Japanese, and it was Mahatma Gandhi who described the offer as 'a post-dated cheque on a failing bank.' In Aug. 1942 the Congress launched what was virtually an India-wide rebellion against continued Brit. rule. In all the circumstances the ease with which this movement was suppressed is surprising, and may have given some of the Congress leaders food for thought. Thereafter the uneasy stalemate continued until the end of the war.

In 1946, in accordance with their avowed policy, the Brit. Gov. made another attempt to solve the problem of providing self-gov. for India. This took the form of a visit to India of 3 Cabinet ministers, led by Lord Pethick-Lawrence, known as the Cabinet Mission. Once again long and patient negotiations failed to produce a result. Although the mission produced an ingenious, and probably over-complex, scheme for a federal centre, with both groups of provs. and individual provs. adhering, they wholly rejected the Muslim claim for partition. But by this time the position taken by Jinnah, in which he had the full support of the vast majority of Muslims, had hardened to such an extent that no compromise was any longer possible. No scheme which did not include the substance of partition and a separate Muslim state, whatever arrangements might be made for Hindu and Muslim minorities on either side of the border, stood any chance of acceptance. The mission's proposals were rejected out of hand by both the Congress and the Muslim League. It is fair to say, however, that the mission did in fact make a contribution to the final solution. They laid the foundations of the 2 new govts. through Constituent Assemblies, and they set in train the events which culminated in the formation of a gov. at the centre containing ministers representing both the Congress and the Muslim League. The complete failure of the gov. to overcome the violent internal strains between the ministers from

the 2 parties may well have provided the conclusive evidence needed to convince the Brit. Gov. that without partition no solution could be found.

*The end of British rule.* The position of the Brit. Gov. in 1946-7 was by no means happy. Having proclaimed their intention to hand over authority, they found nobody to whom to transfer it; that at least is how the problem appeared in London. With the continuing and increasing tensions between the 2 parties inside the interim central gov. of India, and the consequent serious deterioration of Hindu-Muslim relations throughout the country, it quickly became clear that matters could not be left as they were without risking a major disaster. It is conceivable that Brit. authority could have been maintained by the use of strong military force; it is certain that public opinion in England would have been shocked and dismayed beyond measure at any such move. In Feb. 1947, therefore, the Brit. Gov. took what was perhaps the only action open to them. They announced that authority would be transferred in June 1948, whether any future constitution had been agreed or not, and in Mar. 1947 Lord Mountbatten was sent as viceroy to organise the preparations for the transfer. The shock which this announcement administered to the parties in India was no doubt salutary in imparting a sense of urgency, but it did not, and probably could not, induce any greater readiness to compromise. Lord Mountbatten quickly came to the conclusion that partition was inevitable; also that to wait upon events until June 1948 not only would not increase the chance of compromise but, by reason of rapidly spreading communal antagonism and uncertainty about the future, would soon bring ordered administration to a standstill. He finally persuaded the Congress leaders that however much they might declare their opposition to it in principle, partition in practice offered the only road to independence.

The Brit. Gov. now accepted Lord Mountbatten's views and his estimate that only by acting with extreme urgency could violent upheavals and a collapse of the administration be avoided. In June 1947 the Brit. Gov. announced that the Indian Independence Act would be passed through all stages in the following month. This was in fact done, and on 15 Aug. 1947 India as a unit disappeared and the 2 new dominions of India and Pakistan came into existence. Both were completely self-governing, fully free from any form of control by the Brit. Gov., though the governor-general would continue to represent the Crown, free to frame their own constitutions, and if they so wished to leave the Commonwealth. The Act also abrogated all treaties between the Crown and the Indian states, each state being left to decide whether to accede to India or to Pakistan, or, in theory, to remain independent. Hist. has shown that, as was generally recognised at the time, the latter alternative was in no sense a real one.

*The Indian princes (before the partition of India).* The Indian states numbered 682, of which 327 were relatively of very little consequence and only existed independently as the result of a historical accident. The chiefs on the Afghan frontier were in a different category compared with the princes of India, all being Muslims with a political gravitation towards Kabul, and not to Delhi, and as regards their internal administration they were to all intents and purposes independent. There were only 7 of these border states, varying in importance from that of the Khan of Kalat, with a wild and arid mt country of 75,000 sq. m. in Baluchistan, and a pop. of 308,000, to the small state of Phulera on the Hazara border with an area of 34 sq. m. One of the most important is the new state of Swat, founded in comparatively recent years by a descendant of Ahkhand of Swat, on the Peshawar border. Nepal is an independent state and never has been an Indian state. From the mt mass of the Pamirs and Karakoram in the N., where political India impinges on central Asia, to Cape Comorin in the S., a distance of 2000 m., it was possible to travel almost entirely through ter. of the Indian princes without touching Brit. India. From Chitral (which was a Brit. protectorate) one would pass through Gilgit, a dependency of Kashmir; thence the route would lie through small Rajput states in the Himalayas, past Simla to the Sikh state of Patiala in the Punjab plains, a country of prosperous vils. and stalwart fighting men; thence to the desert of Rajputana, home of the blue-blooded Rajputs and memories of anct chivalry; then on to the sphere of the Marathas in Baroda and Indore, secular rivals of the Rajputs. Thence into the great Muslim state of Hyderabad, equal in area to Great Britain, and then to Travancore, with its unrivalled beauty of forest lands and lagoons, and so to Cape Comorin, fabled abode of the goddess Kumari. In all the Indian states covered some two-fifths of the whole of India and contained more than one-fifth of the pop. Their subjects were Brit. protected persons, not Brit. subjects; and they were governed by hereditary rulers under the suzerainty of the Brit. Crown. In the administration of internal affairs the authority of the princes was limited by treaty relationships with the paramount power (Britain) and by usage and suzerance. Brit. Indian law did not prevail nor could the Central Indian Legislature legislate for them. The princes had no relations, however, with foreign powers.

The manner of evolution of this type of autonomous or semi-autonomous kingdom is a problem the solution of which is buried in antiquity. Originating in Hindu political theory, it has certainly been influenced by the Brahminical caste system, which is at least 3000 years old. This scheme of life harmonised best with a gov. in which the ruler administered a small ter. with the assistance of a Durbar or council of ministers, priests, military

feudatories, and representatives of the castes or guilds. This Durbar rule is best illustrated in the more anct Rajput states of central India and the oasis of the great Indian Desert, some of these being tribal in origin. States like the Rajput principalities and some of the older states in the S.—Mysore, Travancore, and Coochin—owed their cents. of existence to the loyal support of their nobles and peasantry. To obtain a clear view of the position of the states in the political fabric of India of to-day, they must be seen in historical perspective. The long-drawn tragedy of invasion, the crash of empires and kingdoms, the bitterness of religious feuds, are reflected in the evolution of India's minor kingdoms' (Sir Wm Barton). Hindu India in the 10th to 11th cents. was fortunate, up to a point, in having found new defenders in the face of terror that was then impending. But for the Rajputs Hinduism would probably have been lost in the surge of Muslim invasion. Unaided, the Brahmins could never have held the people to their faith. But although the Rajput cavalry, in 1191, hurled the Muslims back across the Sutlej, the victory gained only a brief respite. Bengal, Bihar, and Orissa fell before a handful of Afghan horsemen. A new kingdom was estab. (1202), and Mohammedanism prevailed until Clive's victory at Plassey in 1757. For the first four cents. of Muslim rule the chief opponents, the Rajputs, short of man-power, could not for long keep the field. Refusing, however, to admit defeat, they fled to the oasis of Rajputana, into the fastnesses of the central plateau N. of the Vindhya, and to the peninsula of Kathiawar, and there they set up small kingdoms most of which later became fiefs of the great Mogul empire. On the central plateau many of the smaller Rajput barons, however, became feudatories of the Muslim kingdom of Malwa. The resistance of the Rajput rulers preserved the culture, traditions, and religion of the Aryan age.

The Chamber of Princes was estab. in Feb. 1921 as a permanent consultative body on matters affecting the states generally, or both them and Brit. India, or the empire as a whole. In 1947 it consisted of over 100 rulers of states who were members *de jure*, and 12 rulers elected by 127 other states. Arising out of the Montagu-Chelmsford reforms most of the states were in direct relations with the gov. of India. In recent years the policy was pursued of promoting co-operation in such matters as justice, police, and public health. In 1943 an extensive scheme was launched for improving the administrations of hundreds of petty states in W. India by attaching them to large neighbouring states such as Nawanganar and Baroda. (For later hist. and developments, see INDIA and PAKISTAN.) See also INDIAN PRINCELY STATES.

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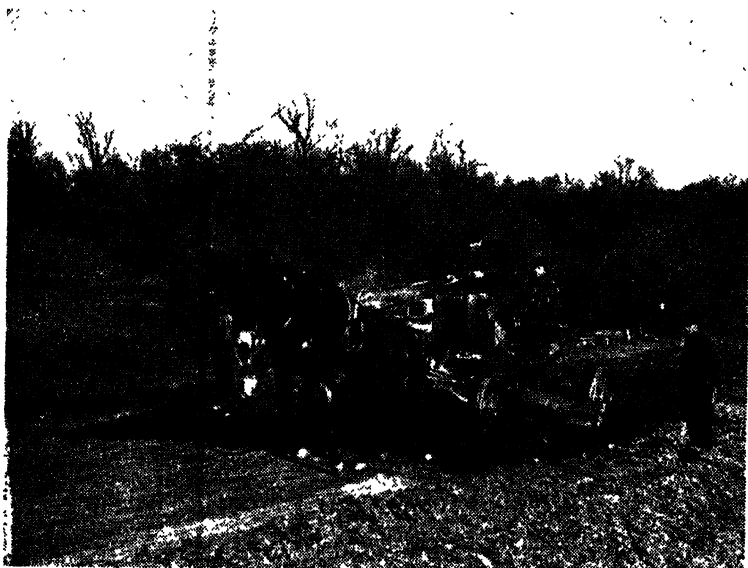
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Indian Summer, season of mild weather on the Atlantic Coast and in the Central States of the U.S.A., usually occurring in Oct. or Nov., but sometimes in Dec. The sky is cloudless, the atmosphere hazy, and the temp. extremely mild. The tendency to extreme dryness causes a number of forest and prairie fires. This summer corresponds to what is known in England as St Luke's Summer, which occurs at the end of Oct. or the beginning of Nov.

Indian Territory, formerly a ter. of the U.S.A., about the size of Ireland. It lay W. of Arkansas, and was separated from Texas by the Red R. This country was

especially reserved for the Indian tribes by the gov. of the U.S.A., and was assigned to them by Act of Congress in 1830. The ter. contained fertile prairies and rich valleys, and was crossed by a broad belt of forest about 40 m. wide called 'Cross Timbers.' The climate was very pleasant and salubrious, and agriculture and cattle-rearing formed the chief occupations. I. T. was occupied by 5 tribes: the Cherokees, the Creeks, the Choctaws, the Chickasaws, and the

soya-beans, wheat, and hay, whilst cattle, milk, and eggs are also produced. The chief mineral products are coal, petroleum, cement, limestone, and sandstone. The production of pig-iron is considerable, and the clay-working industries are important; these yield bricks, tiles, pipes, pottery, etc. Other manufs. include iron, glass, motor vehicles, railroad cars, and woolens. Transport is well provided by the natural facilities of the Ohio R. and by Lake Michigan; while by land there is a



*U.S. Information Service: American Embassy*

A CONSTRUCTION CREW OF CHOCTAW INDIANS WORKING ON A STATE ROAD NEAR MUSKOGEE, OKLAHOMA

Seminoles. Admitted with the white-settled central ter. to the Union as the State of Oklahoma in 1907.

**Indiana**, N. central state of the U.S.A., known as the 'Hoosier State,' the second to be erected from the old NW. Ter. It covers an area of 36,291 sq. m., 314 of which are water-surface; and its greatest length and breadth are respectively 277 m. and 145 m. It is bounded on the N. by Michigan and Lake Michigan, on the S. by Kentucky, on the E. by Ohio, and on the W. by Illinois. The state lies in the Mississippi valley and in the basin of the Great Lakes, and is well watered by sev. streams, of which the most important is the Wabash. The greater part of the surface is undulating prairie land. The fertility of the soil is largely increased by a system of under-draining. Agriculture is important, 91 per cent of its total area being farms; the chief crops are maize,

total of 6600 m. of railway. Added to this all the lines from the E. to Chicago pass through I., and other connections with E., W., N., and S., which are of great importance to trade. The prin. univs. are Purdue Univ.; Indiana Univ.; De Pauw Univ.; Butler Univ.; and the univ. of Notre Dame. I. is governed by a General Assembly consisting of a Senate of 50 members elected for 4 years and a House of Representatives of 100 members elected for 2 years. The climate is remarkably equable. Pop. 3,930,000. The state is seventh in coal production in the U.S.A. The leading cities are Indianapolis, Fort Wayne, Evansville, and South Bend. See W. H. Smith, *History of Indiana*, 1879; L. Esarey, *A History of Indiana*, 1918; S. S. Visser, *Economic Geography of Indiana*, 1923; Federal Writers' Project, *Indiana: A Guide to the Hoosier State*, 1941.



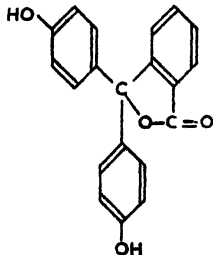
Indianapolis, cap. and the largest city of Indiana, U.S.A., 184 m. by rail SSE. of Chicago and 811 m. W. of New York. It is one of the best built and most attractive inland cities of America. Many of its streets are 100 ft wide and diagonally intersect the 4 main avenues of Massachusetts, Indiana, Virginia, and Kentucky, which radiate from the Central Park, Monument Place. The city is encircled by a railway, connecting the 16 trunk lines, thus facilitating traffic. Among the chief buildings and institutions are the state capitol, co. courthouse, depts of Indiana Univ., and the Arthur Jordan Conservatory of Music. Other cultural institutions and points of interest are the John Herron Art Museum and Art School, the Children's Museum, the State Fair Grounds, and the municipal airport and motor speedway. Industries include meat packing, printing and publishing, drugs and medicines, and automobile and aeroplane parts. I. is the national H.Q. of the Amer. Legion. Pop. 427,200. See L. Burns, *Indianapolis: The Old Town and the New*, 1923.

Indians of America, see AMERICAN INDIANS.

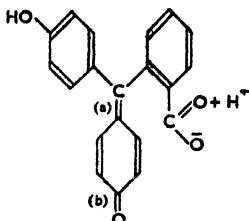
Indicator, term in chem. to denote a substance used for the detection of minute amounts of materials. Commonly, the word is applied to those bodies that 'indicate' an acid or alkaline reaction. One of the most frequently used I.s is litmus, a substance prepared from certain lichens. This with alkalis gives a blue, and with acids a red coloration, and in most cases the colour-change is sharply defined. In titrating acids and alkalis, care has to be exercised in the choice of I. For example, in the case of carbonates, litmus may not be used (unless the titration be performed so that all the carbon dioxide is expelled, since the latter has a distinct effect upon the I.). Similarly, the I.s prepared synthetically require discretion in their use, e.g. phenolphthalein is an excellent I. for strong acids and bases, but may not be used for the titration of a weak acid by a base, since the end-point is not sharp. Another frequently used I. is methyl orange, which is the sodium salt of an acid, helianthine. This is a sodium salt of an organic acid, which in presence of alkalis is yellow, and in acid solution red. It is, however, necessary that the acid should be 'strong', otherwise no sharp end-point can be obtained. Of other natural I.s may be mentioned cochineal and extracts of red cabbage and other vegetables, but the greater number of the more recent products belong to the benzene series.

Much has been written concerning the 'theory of indicators' with a view to explaining the change of colour that occurs according to the reaction of the solution. The first adequate explanation was offered by Ostwald, who based his views upon the ionic theory of solution (q.v.). According to this view, an acid is a substance which, in aqueous solution, yields free hydrogen ions, and conversely an alkali is one which yields free hydroxyl

ions. Consequently a solution which contains ions of hydrogen and of hydroxyl in equivalent amounts may be regarded as neutral. This condition is realised in the case of pure water, which is only slightly dissociated into its component ions. Further, a 'strong' acid or a 'strong' base is one which in aqueous solution is strongly dissociated. On the other hand, a 'weak' acid or base is one which in solution is not dissociated to any great extent, but remains non-ionised. The assumption made by Ostwald in his theory to account for the behaviour of I.s is that the latter are either weak acids or weak bases, and that the change of colour is due either to the presence of the non-ionised substance or of a coloured ion. In the case of phenolphthalein, it is supposed that we are dealing with a weak and colourless acid. In the terms of the dissociation hypothesis, this is only dissociated to a slight extent, and any increase in the concentration of hydrogen ions, such, for example, as takes place if a strong acid be present, tends to diminish the dissociation. In consequence, there is no colour change. If, however, an alkali such as sodium hydroxide be added, the hydroxyl ions associate or combine with the hydrogen ions of the I., leaving cations of sodium and the anions of the I. The latter, in this case, are supposed to be coloured, and, therefore, the colour change is manifest. Methyl-orange acts as a very weak base, yielding in solution red cations and small numbers of hydroxyl ions ( $\text{OH}^-$ ); the undissociated substance is yellow. On addition of an acid, the hydrogen ions of the latter combine with hydroxyl ions of the I., and more of the undissociated part of the I. then ionises, so that the red colour of the cations is seen. Addition of alkali, on the other hand, suppresses the ionisation of the I., which therefore shows the yellow colour of the undissociated molecules. In addition to the above theory there has been proposed a so-called chemical explanation depending upon the structural differences existing between the 'lactoid' or colourless form and the 'quinonoid' or coloured form. It has been assumed that all coloured substances possess the quinonoid structure (see QUINONE), and one view of the change of colour of I.s is based upon the change into the quinone type. Phenolphthalein, in the free state, is represented by the formula



its acidic properties being due to the presence of a phenolic (i.e. OH) group. On treatment with alkalis, a change in structure occurs, and the salt is regarded as having the following constitution:



(The double-bonds (a) and (b) present in the molecule are characteristic of the quinonoid structure.) This latter view is in agreement with Hantzsch's theory of pseudo-acids and pseudo-bases, and is not entirely antagonistic to Ostwald's dissociation hypothesis.

A large range of Is. is now available, so that it is usually possible to select a suitable one for indicating any desired concentration of hydrogen ions (see HYDROGEN ION CONCENTRATION). A 'universal indicator' is a mixture of various I.s. made up in such a way that it shows a series of colour changes over a large range of hydrogen ion concentration. Universal Is. are extremely useful in applied and technical chem. for the rapid estimation of hydrogen ion concentration.

'External' Is. are substances that are used to determine the end-point of a reaction, but must not be actually introduced into the reacting mixture, since they would either cause undesirable changes or would be obscured by the colour of the solutions concerned. They are usually placed in drops on a white tile, and drops of the reacting mixture are removed from time to time with a glass rod and added to the I. on the tile, when the colour changes may be noted.

'Fluorescence' Is. are substances which indicate variations in hydrogen-ion concentration by changes in the colour or intensity of the fluorescence they emit in daylight or ultra-violet light.

'Adsorption' Is. are used to detect the end-point of precipitation reactions. If silver nitrate solution is added to a solution of sodium chloride in the presence of a suitable dyestuff with a coloured anion, e.g. fluorescein, the precipitate of silver chloride is white until the solution contains a slight excess of silver ions. The silver chloride then takes up the coloured anion from the solution and appears pink, so that the end-point is easily detected. When silver ions are in excess, the silver chloride becomes positively charged, i.e.  $[AgCl]Ag^+$ , and this adsorbs the coloured ion of the fluorescein. Adsorption Is. have been used in the titration of halides, thiocyanates, and cyanides with silver nitrate.

Indicator Diagram, see STEAM ENGINES.

Indiction, term used in chronology (q.v.) to denote a period of 15 years. The meaning of the word originally signified 'the imposition of a tax,' and it was instituted by Constantine the Great, but it gradually crept into the calendar of historians, principally ecclesiastics, to mark time; thus, in the Middle Ages, the dates of charters were expressed in I.s as well as in years of the Christian era. The papal I., which has alone survived, was reckoned as starting 1 Jan. 313.

Indictment, written accusation of crime, triable by a jury, which states the place of trial and the nature and particulars of the offence with which the accused is charged. See CRIMINAL LAW.

Indies, East and West, see EAST INDIES and WEST INDIES.

Indifferentism, philosophical term, denoting the conception that all things in life are of 'indifferent' value, being outside the moral law. I. in this sense originated with the Stoics, who, in common with the Cynics and the Sceptics, held that only virtue and vice possessed absolute value, all qualities other than these two being 'indifferent.' With the Middle Ages, the term came to have a second meaning, especially as it appeared in the teachings of Adelard of Bath. With him I. came to mean the philosophy that life is either particular or universal, moral or immoral, according to the point of view from which it is regarded. Values can, therefore, only be indifferently related to any idea of absolute value. Kant used the term 'indifferent' as meaning extra-moral, but I. has come now to be used simply to denote a negation of all values which in life, it is supposed, cancel each other out, leaving no balance of absolute right or wrong.

Indigestion, see DYSPEPSIA.

Indigirka, riv. in NE. Siberia, rising in the Oymyakon plateau and flowing N. into the E. Siberian Sea. Length 1,100 m.; basin 140,000 sq. m.

Indigo, naturally occurring dye-stuff obtained from various plants. Chief among these are species of *Indigofera* (e.g. *I. sumatrana*, from which the Bengal I. is prepared). I. is also present in the juices of *Isatis tinctoria*, or the woad plant, which was cultivated in England until quite recently for the preparation of a fermentation vat used in I. dyeing. I. occurs in the form of a glucoside, known as *indican*, and this latter, on exposure to the influence of atmospheric oxygen and a ferment present in the leaves of the indigo-bearing plant, is converted into the insoluble blue, *indigotin*, which is the essential principle of I. The preparation of natural I. is carried out as follows: the plant is cut down, steeped in vats for about 12 hrs. and the extract, which is of a greenish colour, separated and run into fresh vats, where it is stirred vigorously, so as to bring the indican into contact with the atmospheric oxygen. Insoluble I. is precipitated as a mud, which is collected, pressed, dried, and cut into cubes. Various components other than indigotin are

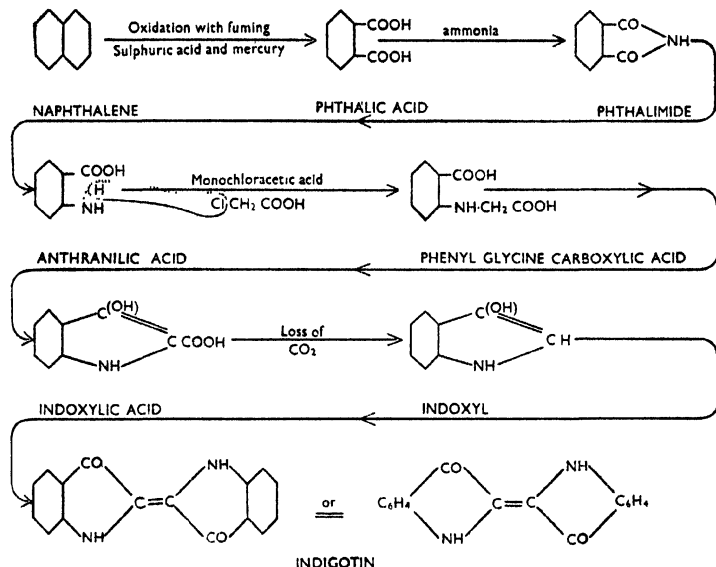
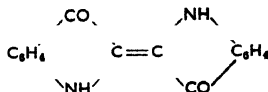


DIAGRAM OF THE PROCESS OF MANUFACTURE OF INDIGO

present, the most important being indirubine, or indigo red, indigo green, and indigo brown. The importance of natural I. as a dyestuff has greatly diminished during the last few years owing to the perfection of various synthetic processes for its manu. The success of these has been in large part due to the work of Adolf von Baeyer, who, by a series of masterly researches, elucidated the constitution of the dye-stuff, and showed that it could be correctly represented by the formula



I. is now manu. by a process shown in outline in the diagram above. The synthetic product is considerably cheaper than the natural, and has practically entirely replaced it. Sev. thousand tons of indigo are manu. annually, particularly in Great Britain and the U.S.A. Many other dyes related to I. in composition have also been synthesised and are important dyes. See also DYE.

**Indigo Bird** (*Cyanospiza cyanea*), small bird of the finch family, native of the U.S.A. It is about 5½ in. long, the adult male is of a beautiful blue colour, whilst the female and young are of a bluish-grey. It has a sweet song, something like that of a canary, and frequents open spaces.

**Indirect Rule**, native administration characteristic of the Brit. tradition of colonial rule in the African colonies and also in Brit. Malaya (up to the Federation). The principle is that native institutions are more appropriate agencies of gov. than replicas of European political institutions. I. R. affords to native peoples not only an opportunity for self-development, but the possibility of adjusting themselves with the least avoidable disturbance of their own way of life to the novel conditions which by contact with the white men they now must meet. N. Nigeria is the classical example of I. R. devised by its first Governor, Lord Lugard (q.v.), nearly half a cent. ago. That system persists there to-day in conjunction with a superimposed system of parl. democracy. The typical political unit is the prov., in which the chief executive authority is a Muslim emir. To him a Brit. resident, who is the instrument of higher policy, acts as adviser, and in some cases as father confessor. The relationship is a delicate one and depends much on individual personalities. On the whole it works well in N. Nigeria. Though the principles of I. R. are in accord with Brit. political sentiment, the actual evolution of the system has been more or less fortuitous; and it was the existence in Uganda of a well-developed political organisation in Buganda, and in N. Nigeria of the Muslim emirates, which facilitated the use of native authorities in

a way which could not have been contemplated if experience had been confined, e.g., to the backward societies of S. Nigeria or the weak political units of some parts of Brit. E. Africa. In the latter, however, in Tanganyika, Sir Donald Cameron rendered valuable services in extending the system of I. R. as he himself had helped to develop it in N. Nigeria. Nor, again, does the system owe its origin to any preconceived theory of rule any more than does its opposite, direct rule; for all European govts. have been confronted by the problem of administering large colonial areas with a small European staff mostly ignorant of native custom and language, and in all cases they have been compelled, at least in the earlier days, to make use of chiefs or other available native authorities.

There has been much controversy over the relative merits of I. R. and direct. The most effective means of inducing native opinion to accept salutary innovations is the end sought in the system of I. R., which relies on the appeal to the respect of a people for its own leaders, and its pride in institutions which it can call its own. The system of direct rule, on the other hand, considers rather how best to make quickly effective the decisions of superior authority, and sees its most effective agency in the council system, or in the training of chiefs as subordinate agents of the executive gov. In the Union of S. Africa the form which native administration has taken has been dictated by the conviction that Bantu development must be regarded chiefly in relation to the place which the native must occupy in a society dominated by European institutions—hence the policy of 'segregation.' It is, therefore, understandable that S. Africa should prefer a system of direct administration in native affairs, and should rely on the council system as the best for native areas with organs of local gov. It is also evident that the traditional authority of I. R. would not be suitable for adoption as an agency for managing the large native pops. resident in the urb. centres of the Union of S. Africa, or, indeed, for the de-trialised urb. pops. in, for example, Lagos and Nairobi. In S. Rhodesia the system of direct rule, though it rests in principle on the same basis as in S. Africa, is less developed, notably in the matter of suitable tribunals. Although the liberal provision made for native lands is a prominent feature of S. Rhodesian policy, the colony has not yet evolved a comprehensive scheme for the regulation of native affairs. Kenya colony, on the other hand, has in operation a fully developed system of native administration founded on the creation of dist. councils presided over by an administrative officer, with native courts consisting of *ad hoc* nominated members. The adoption of this system of direct rule is not due to any assumption (as in S. Africa and in the Fr. African colonies) that the welfare of the native lies in his rapid assimilation of the use of 'civilised' institutions; but rather

to the fact that the Kenya Gov. had not sufficient confidence in the traditional authorities to justify their exploitation whether as judicial tribunals or as agencies of local gov. But it is claimed for the Kenya system, not unjustly in the circumstances, that it is the best adapted to a colony where Africans are continually in close contact with Europeans and also that it provides opportunities for educ. Africans to take a part in local gov.

In the Fr. African ters. the adoption of a system of direct rule was deliberate. Whereas Brit. sentiment favours the setting up of institutions which afford a training in the arts of self-gov. besides holding out the prospect of autonomy in the future, this formed no essential part of the Fr. theory of colonial administration. The Fr. goal was not native independence but a progressive association with Fr. methods of administration and with Fr. economic and social institutions. It is natural that, in this scheme of native development, the traditional indigenous institutions should not appear to have the intrinsic value which the scheme of I. R. assigns to them. It is claimed, not without some justification, that this system gives the metropolitan administration a more efficient and more easily controlled agency for development than any other system to be found in operation in Africa, especially as the chiefs are now an educ. class trained at one of the chiefs' schools. Critics, however, of the Fr. system think that it is not to the African's own interests to pass as rapidly as possible from the use of his indigenous institutions and of his own language to a regime of Fr. civilisation and language. They hold, too, that the operation of the system must inevitably prejudice the development of a spirit of responsibility and initiative. In the Belgian Congo the system of native administration is in a state of transition. The gov. is as convinced as the British that a traditional chief can render better service to the administration than one who is appointed (as they are in some of the Brit. E. African colonies); but the Congo Gov. is not yet prepared to give the chief either the same judicial authority or the same position in local gov. as would be assigned to him in Brit. ters. Like the French, the Belgian Gov. have less hesitation than the British in removing their chiefs. Moreover, with the exception of the Ruanda-Urundi, the Belgians have encountered few traditional authorities who have commanded a wide measure of support among their people.

In both Brit. W. and E. Africa the prevailing policy is still that of I. R., but is encountering ever more criticism. The principles of I. R., 'if not necessarily incompatible with the avowed ideal of self-gov. by representative institutions'—the tendency to-day is towards greater African (elected and nominated) representation in the legislative councils—are so far alien to it as to presuppose considerable modifications of native institutions before they can fit into any scheme involving an elected parliament' (Lord Hailey). Fr.

policy, on the other hand, does not envisage future self-gov. for their colonies; development in their case is regarded as adapting the colony to occupy in reality the position now assigned to it in principle as an integral part of France. This is emphasised in the definition of the constitutional and legal status of the overseas dept and ters. within the Fr. Union (see FRANCE, *Constitution*).

The innate loyalties of the African have always been to his tribe or vil.; loyalty to the larger organisation which the white man has created can be built up only gradually. The use of the innate loyalties to introduce the idea of self-gov. was, as shown above, the essence of the fruitful principle of I. R., but the last 10 years have seen a silent revolution of imperial policy, as a result of which the days of I. R. seem to be numbered. There are 2 necessities of the coming generation for which I. R. cannot provide. By the first principle of Brit. Imperial rule the purpose of the suzerain power is to make available to the colonial peoples the characteristic benefits bestowed by gov. upon its subjects at home—that is, to-day, the manifold services of the 'welfare' state. But as a method of administering social services the traditional tribal system of Africa is hopelessly inadequate. Secondly, the future political system must offer scope for the natural aspirations of Africans who, after contact with European political thought, expect as a general right those opportunities of public service and advancement which in the tribal system could only fall to them by the accident of birth. These 2 necessities, that of the *carrière ouverte aux talents* and that of the large-scale administration dictated by the economics of the social services, in themselves mean the eventual doom of I. R. Yet the system cannot be hurried to extinction; for the tribal system imposed its own restraints upon power, variable yet always substantial—the restraints of custom, in which the system itself was rooted. All over colonial Africa these are now passing. The required restraining element cannot come solely from dependence upon a popular franchise. A loyalty comparable to that evoked by the old tribal system must be engendered. Hence the efforts being made by the Brit. Colonial Office to educate Africans in self-gov. through participation in both legislative and executive responsibility at the local level. The test of their success will be the development of a true loyalty to social units of a national scale; this is the great problem that challenges the emancipating imperialism of the 20th cent. See Lord Lugard, *The Dual Mandate in Tropical Africa* (4th ed.), 1929; H. B. Thomas and R. Scott, *Uganda*, 1935; Sir R. Winstedt, *A History of Malaya*, 1935; L. S. B. Leakey, *Kenya Contrasts and Problems*, 1936; M. Perham, *Native Administration in Nigeria*, 1937; C. K. Meek, *Law and Authority in a Nigerian Tribe*, 1937; R. Emerson, *Malaysia: a Study in Direct and Indirect Rule*, 1937; M. R. Dilley, *British Policy in*

*Kenya Colony* (anti-imperialist polemic by an Amer. authoress), 1937; Lord Hailey, *An African Survey*, 1938; Sir D. Cameron, *My Tanganyika Service and Some Nigeria*, 1938; M. Wight, *The Gold Coast Legislative Council*, 1947.

Indium, rare metallic element which occurs in certain specimens of zinc-blende, and resembles aluminium and thallium in its properties. Its symbol is In, its atomic number 49, and its atomic weight 114.8. It is a soft white metal, unacted on by air or water at ordinary temps., but on heating it burns to a yellow oxide with a blue-violet flame, which gives 2 characteristic lines in the indigo part of the spectrum; hence its name.

Individual (Late Lat. *individualis*, that which is not divided), originally denoted a thing indivisible in substance; Milton in his *Animadversions* speaks of the 'individual' Catholic Church. Hence, it also meant inseparable; cf. *Paradise Lost*, iv, 406, 'an individual solace.' Later it was used, as opposed to the word collective, to mean pertaining to a single person, as in the phrase 'individual effort,' or to anything of a striking and original character. In colloquial speech it is often used as a noun to denote man or person.

Individual Psychology, see PSYCHOLOGY. Individualism, term originated by the Saint-Simonians, the founders of socialism, to describe the competitive society to which they were opposed. I. began with John Locke, Bernard Mandeville, and David Hume, and achieved full stature for the first time in Josiah Tucker, Adam Ferguson, Adam Smith, and Edmund Burke. Its greatest 19th-cent. historians were Alexis de Tocqueville and Lord Acton. A strand of false I. was represented in Rousseau, the Encyclopédistes, and the Benthamites (philosophical radicals); but this 'rationalistic' I. tends to develop into collectivism, the opposite of true I. (see below).

I. is primarily a *theory* of society—an attempt to explain the forces determining the social life of man. It is also a set of political maxims derived from this view of society. It shows that many human institutions grow and work without a directing mind, and that, as F. A. Hayek has put it, 'the spontaneous collaboration of free men often creates things which are greater than their individual minds can ever fully comprehend.' This is the great discovery of Adam Smith and of classical political economy (see below); it lies at the root not only of economic but of all social life, for it explains most of the order found in human affairs as the unforeseen result of individual actions. This 'anti-rationalistic' attitude to man as an 'irrational' and fallible being whose individual errors are corrected only in the course of a social process is the most characteristic feature of Eng. I. The central idea was first clearly formulated by Mandeville in *The Fable of the Bees*.

The fallacious I. of Descartes and Rousseau traced order to deliberate design. This Cartesian rationalism is in our day the characteristic attitude of

technicians and engineers to social problems. It has produced the theory of the inevitability of historical development, the tendency to fatalism, and the faith in socialism and collectivism as the environment that offers the greatest scope for human design, control, and planning.

The confusion with false I. led many thinkers to ascribe false doctrines to true I. A common error is that I. assumed a rational, 'economic man.' On the contrary, Adam Smith and the classical economists assumed that only by the pressure of the market could man be forced to act 'rationally,' that is, adjust his means economically to his ends. The realistic assumptions of the Eng. classical economists concerning the nature of man were in fact the key to their accurate analysis of the motives and working of human society; and they remain true to-day. It is because much modern political thinking assumes that man is rational, selfless, well-meaning, concerned for the public good, or even altruistic, that so much 'social planning' has proved disappointing. Adam Smith's chief concern was not so much with what man might occasionally achieve when he was at his best but rather with ensuring that he should have as little opportunity as possible to do harm when he was at his worst. I.'s chief merit is that under it bad men can do least harm. It does not require men to be good; it uses men as they are: good and bad, self-seeking and public-spirited, intelligent and stupid.

The individualists were thus primarily concerned to evolve institutions which would lead man, induced by his own motives, to contribute as much as possible to the needs of others. Their finding was that a system of private property provided stronger inducements than had been understood. They did not suppose that the system could not be improved. Nor did they suppose that there was a 'natural harmony' that would achieve the desired purpose; they emphasised the need, as Burke put it in *Thoughts and Details on Scarcity*, for 'well-constructed institutions' where the 'rules and principles of contending interests and compromised advantages' would reconcile conflicting interests without giving any one group power to prevail over others.

The common belief that I. approves of and encourages human selfishness is also erroneous. The great 18th-cent. writers referred to 'man's self-love' and his 'selfish interests' as the prime mover of human action. But these did not mean egotism: they included family, friends, and any persons or purposes for which the individual cared to exert himself. Moreover, since man cannot know more than a tiny part of society, only the immediate effects of his actions on his own circle can enter into his calculations. Whether he is selfish or altruistic, he can care effectively for only a negligible fraction of all society. The philosophical problem is not whether man is, or ought to be, guided by selfish motives but whether he should be guided in his actions

by the immediate consequences which he can know and care for, or whether he should be made to do what someone else who is supposed to understand the effects of his actions on society think appropriate. This is a matter of human nature and constitution; whether man is or is not selfish is irrelevant.

The Christian tradition had long laid down that if man's actions were to be of any merit, he must be free to follow his own conscience in moral matters. The classical economists added the further argument for human freedom that, if man is to contribute as much as he is able to society, he must be free to use his knowledge and skill and to be guided by his care for the small part of society which he knows and understands. Their problem was to devise institutions that would transform these strictly limited concerns into inducements that would lead man voluntarily to contribute to human needs that lay beyond his immediate vision. Their great discovery was that it was the market mechanism that would make man contribute 'to ends which were no part of his purpose.' In recent years this has been recognised even by leading socialist thinkers: for example, A. P. Lerner (in *The Economics of Control*, 1944) wrote that the essential social utility of the price mechanism is that 'if it is appropriately used it induces each member of society, while seeking his own benefit, to do that which is in the general social interest. Fundamentally this is the great discovery of Adam Smith and the Physiocrats.' The confusion about selfishness arose because the classical dictum was wrongly phrased: it is properly put not in the form that man is, or ought to be, guided by his own interests but that he *ought to be allowed to aspire to what he (and not another) thinks desirable*.

Nor is it necessary for the individualist position to suppose that man knows his interest best. The point is that, since no one can know who *does* know best, the only way to find out is by allowing everyone to do what he can. The fundamental presupposition is that no one knows all the answers to human needs and problems, and it is therefore wisest to allow people with varying gifts and skills to test what each can do and to be corrected by others. This argument does not suppose that men have the same endowments; it supposes that *no one man is fit to judge the capacities which others possess or are to be allowed to use*. The basic distinction is between treating people equally and trying to make them equal. The first is the condition of a free society; the second, as de Tocqueville put it, is 'a new form of servitude.'

From these realistic assumptions concerning human nature, I. drew the conclusion that coercive or exclusive power should be strictly limited. It stands for freedom for spontaneous association among individuals, provided it is voluntary and does not become exclusive or lead to coercion of others. Unlike anarchism, I. accepts the need for

coercive power but wishes to limit it to where it is needed to prevent coercion by others and in order to minimise total coercion in society. This limitation of coercive power does not, therefore, mean *laissez faire* in the commonly understood sense of leaving things as they are. Nor does it mean merely the protection of life, liberty, and property. It means a list of rules to govern human conduct—the agenda of gov. This in turn requires that each man shall have a known sphere of responsibility, indicated by a set of *formal, abstract rules by which each individual can know precisely his rights and responsibilities*. Such rules contrast with *orders* which lay down *specific duties*. The former mean freedom under law; the latter mean the use of legislation to destroy freedom. The rules of a liberal, individualist society would, for example, state the ways in which owners may use property of various kinds—chattels, land, inventions, literary or artistic creations; it would assist in spreading information; it would eliminate avoidable uncertainty (not by preventing people from using, for example, an invention, but by helping them to adapt themselves to it; and so on). These rules form merely a framework; within it man is otherwise free.

Such a conception of a society of individuals governed by abstract, general rules does not exclude room for voluntary associations. On the contrary, I. believes that voluntary action in families, groups, and communities can perform better what the State would have to do by coercive action. But it does mean that individuals and groups must accept the collective judgment of other people exercised through the market. This is a source of much misunderstanding. The discipline of the market may seem unintelligible and irrational; the changes it requires may be disturbing and disruptive; it may seem to be the 'blind force' of the social process. But it is the method by which people in general assess the contribution to society of particular individuals or groups. If the price of a commodity or service falls, the reason is probably that people want it less urgently and are prepared to pay less to those who make or supply it. The market is merely a device for reflecting and giving effect to the wishes and decisions of consumers. The choice is not between submission to the mercurial market and freedom from the need for adaptation to change, but between submission to an impersonal market, which leaves a wide choice of ways of responding to its dictates, and submission to the orders of officials, which normally leave none.

The latter has been the fate of the Germans. Their refusal to accept anything that was not the outcome of deliberate design explains why they have never succeeded in building truly free, liberal political institutions. (The new market economy developed after the Second World War, largely by Ludwig Erhard, may be a turning point.) The attitude

that everything must be tidily planned had produced a progressive tendency to the central control of all social processes, the condition in which only an all-powerful central government can preserve order and stability. These tendencies first appeared in the 19th cent., and the individualist philosophers, de Tocqueville, Acton, and others, found themselves opposing centralisation and favouring small nations and the federalisation (decentralisation) of large ones.

I. claims that democratic ideals spring from its basic principles. But it believes that under democracy, no less than under any other form of gov., 'the sphere of enforced command,' as Acton said, 'ought to be restricted within fixed limits.' Moreover, as F. A. Hayek has put it (*Individualism: True or False*, 1946), 'individualism... has no superstitious belief in the omniscience of majority decisions.' Democracy is based on the convention that the majority view decides common action, but it does not follow that the majority view should become the generally accepted view. The very opposite is true: the justification of democracy is that the minority view of to-day may become the majority view of to-morrow.

I. is not egalitarian. It is opposed to privilege, but it believes that gov. should not be empowered to limit what the able or the fortunate may achieve. It believes that no man or group of men should have power to decide what another man's status should be.

I. recognises the family as a legitimate unit as well as the individual; hence it sees no ground for making all individuals start at the same level by preventing them from enjoying advantages they have not earned, such as being born to parents of more than average intelligence or conscientiousness. The individualist philosophers were clear on this point: de Tocqueville said: 'Democracy and socialism have nothing in common but one word, equality. But... while democracy seeks equality in liberty, socialism seeks equality in restraint and servitude.' Acton said: 'The deepest cause which made the Fr. Revolution so disastrous to liberty was its theory of equality'; and 'The finest opportunity ever given to the world was thrown away, because the passion for equality made vain the hope for freedom.'

In short, F. A. Hayek has argued, I. embraces the fundamental attitude of humility towards the processes by which mankind has achieved what has not been designed or understood by any individual. It teaches that society is greater than the individual only in so far as it is free. If it is controlled or directed, it is limited to the powers of the individuals who control or direct it. I. is the great liberator. If man's horizon is limited to what can be consciously controlled by individual reason, and we refuse to take advantage of what can be made possible by the spontaneous association of individuals, we may achieve the fate of which Edmund Burke warned: 'everything about us will dwindle by degrees, until at length our concerns

are shrunk to the dimensions of our minds.' See ANARCHISM; CLASSICAL ECONOMISTS; RULE OF LAW; SOCIALISM.

See Walter Lippmann, *The Good Society*, 1938; F. A. Hayek, *The Road to Serfdom*, 1946, and *Individualism and Economic Order*, 1949; Lionel Robbins, *The Theory of Economic Policy in English Classical Political Economy*, 1952, and Robert Torrens and the Evolution of Classical Economics, 1958; R. L. Heilbroner, *The Great Economists*, 1955.

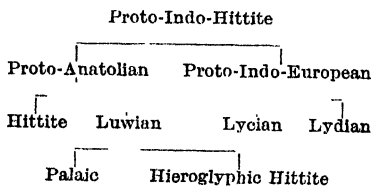
Indo-China, French, former Fr. possessions in SE. Asia comprising Cambodia, Laos, and Viet Nam (qq.v.). See ANNAM; COCHIN-CHINA; TONKING. See also E. Hammar, *The Struggle for Indo-China*, 1954, and G. Taboulet, *La Gesle Française en Indochine* (2 vols.), 1955-6.

Indo-European Languages. This term, first employed (in 1813) by the gifted physician, Egyptologist, and philologist Dr Thomas Young of Emanuel College, Cambridge, is to be preferred to 'Indo-Germanic', as it is called by patriotic Ger. philologists, or Aryan (so termed by super-patriotic Germans), which is now technically reserved for the Indo-Aryan branch (see below). This family comprises most of the languages spoken in Europe and some of those of Asia, particularly the Indian subcontinent. The speakers of these languages have for many cents. been the leaders in the hist. of the world; their literatures are amongst the greatest. The development of these languages has been the most varied and the most rich. The languages belonging to the 3 main branches of this family, Germanic, Romance, and Slavonic, nowadays are spoken by about 325 million people, about 250 million, and about 200 million respectively. On the basis of a great deal of evidence, philologists have succeeded in constructing the Proto-Indo-European language and a 'family-tree' of the well-attested I.-E. L., although not all the scholars agree as to the place in which one or another of these languages (e.g. Hittite or Armenian) should be placed.

The main features of the I.-E. L., at least in their early stages, are as follows: A word normally consists of 3 elements, root, prefix, and ending; the grammatical relationships are generally expressed by means of inflection; and the main morphological features are reduplication of the verb stem and the vowel gradation, known by its Ger. term, *Ablaut*. The Indo-European family falls into 2 sub-families, termed from the word 100, in Latin *centum* (pronounced *kentum*), and in Zend *saem*. These 2 groups are distinguished from one another by their treatment of certain palatal and labio-velar sounds (*k*, *g*; *gʷ*, *gʷʰ*). The *centum* group (Greek, Latin, Celtic, Germanic) has *k*, *g*; *gʷ*, *gʷʰ*, where the *saem* group (Indo-Iranian, Armenian, Balto-Slavonic, Albanian) has *s*, *z*; *k*, *g*. This subdivision was supposed to indicate that the Indo-European family may fall into 2 great groups: W. and E. The theory that the *centum* group may represent the W. group, and the *saem* the E., has been proved

erroneous by the discovery in E. Turkestan (see below)—where one would have expected *saem* dialects—of a language in which the word 100 is *kānt*. Also Hittite, which does not contain features of the W. language, has forms such as *kuis* and *kuit* (corresponding with Latin *quis* and *quid*).

One of the many vexed problems of the I.-E. L. is that of Hittite. The Hittites inhabited Asia Minor and N. Syria from the third to the first millennium BC, and during the 14th and 13th cents. BC constituted one of the chief empires of the Near E. The most important stage in the recovery of the long forgotten empire of the Hittites was the discovery in 1906-7 at Boguz Köy (Boghaz Keui), the anct. Hattushash, cap. of the empire, of the rich royal archives containing over 20,000 documents written in cuneiform (see CUNEIFORM WRITING) on clay tablets. Some of these documents are couched in Accadian language, but the bulk is written in Hittite. This language has been recognised as an Indo-European speech since its decipherment in 1915 by the Czech scholar Bedřich Hrozný. The Assyriologist and Hittitologist Emil Forrer, on the basis of 'archaisms' in Hittite as compared with other anct. I.-E. L., has suggested, since 1921, that Hittite broke away from the parent speech before any of the other known I.-E. L. The Amer. linguist E. H. Sturtevant accepted and developed this suggestion. According to him Hittite and 'Proto-Indo-European' are both descended from an earlier language, by him termed 'Proto-Indo-Hittite.' Besides, in Sturtevant's opinion 5 other languages of Asia Minor, known from various inscriptions or from citations in the Hittite documents, are closely related to Hittite. Apparently all these early Anatolian languages preserve certain features that have been lost in all the I.-E. L. Sturtevant thus suggests the following family tree:



It may be noted that until recently Lycian and Lydian were considered non-I.-E. L.

Recent excavations and studies have recovered other forgotten languages belonging to the Indo-European linguistic family. In the first seven or eight cents. of the Christian Era, Chinese or E. Turkestan (now called Sinkiang), almost wholly a sandy waste to-day, was 'a land of smiling cities with rich sanctuaries and monasteries stocked with magnificent libraries.' This anct. 'melting pot' of peoples of quite different forms of speech, script, and religion is now inhabited by a sparse pop.



mainly of Turkish tongue and Muslim religion. MSS. discovered since 1890 revealed that in the latter part of the first millennium AD, the pop. living between the R. Tarim and the Tienshan Mts, including the ters. of Turfan, Qarashahr, and Kucha, spoke a language belonging to the *centum* group of the Indo-European family. This language, however, presents sev. features not paralleled in the other I.-E. L., and its relationship with the other groups has not yet been sufficiently cleared up. It was assumed at first that the new language was the speech of anct Tokharistan, and it was therefore termed Tokharian, but apparently anct Tokharian was a non-Indo-European form of speech. Besides, the new language is not uniform; 2 dialects or languages can be distinguished, which nowadays are termed *Agnean* and *Kuchean*. Other newly recovered languages preserved in MSS. discovered in Turkestan are *Khotanese*, which was spoken in the anct kingdom of Khotan, and is now known to have been the easternmost Middle Iranian (or Persian) form of speech, and *Sogdian*, another E. dialect of Middle Iranian, which was widely used in central Asia for many cents., and particularly in the second half of the first millennium AD.

The Indo-European 'family tree,' with particular reference to the Italic and Celtic languages, is printed on pp. 52-3, with the 'family tree' of the Germanic languages. Various detailed questions are not taken into consideration; amongst others, the problem of the Thracio-Phrygian group of languages, which certainly were Indo-European, but too little of them is known to give them the exact place in the 'family tree.' Also very little is known about the linguistic affiliations of anct Illyrian, which was mainly spoken on the E. coast of the Adriatic Sea; the Messapii, who inhabited in pre-Rom. times the It. region now known as Apulia; the Piceni, who lived on the central It. coast of the Adriatic; and the Veneti, who inhabited the NW. coast of the same sea, apparently belonging to the same linguistic group as the Illyrians. Some scholars consider Armenian and Albanian, which apparently are isolated independent branches of the Indo-European family, as remnants of a large group, termed Thracio-Illyrian, including anct Thracian, Illyrian and allied languages, anct Phrygian, and Scythian, to the N. of the Black Sea.

The following are a few major points to be considered in connection with the Indo-European 'family tree.'

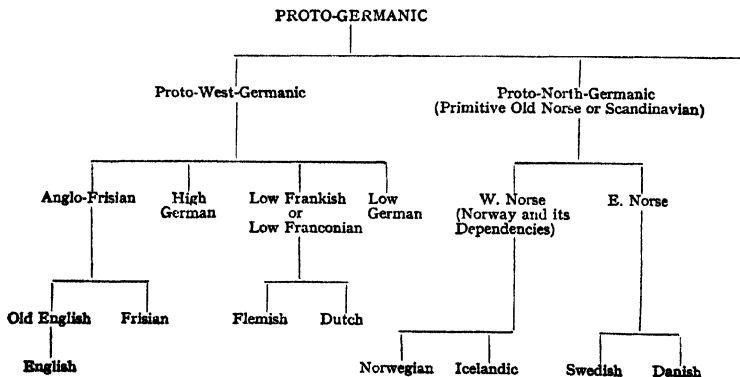
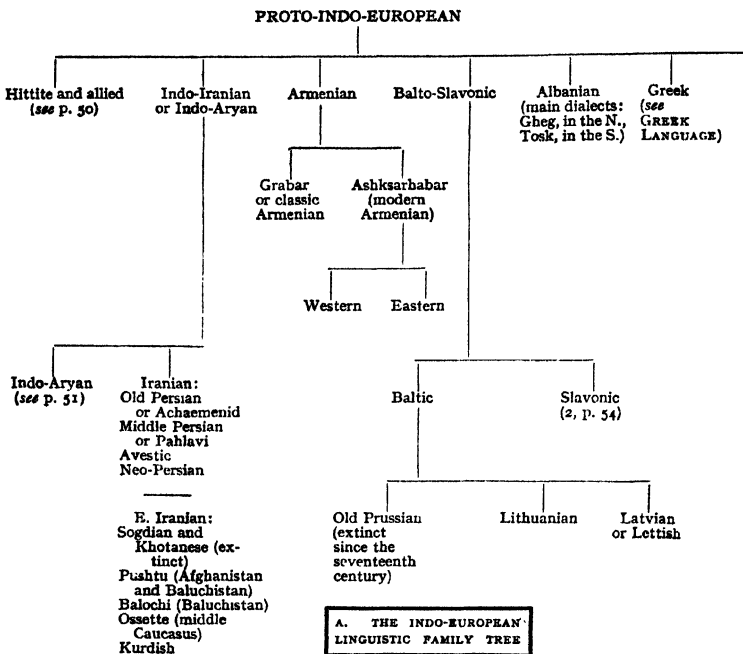
(1) The linguistic problems of India are rather complicated. Her numerous languages and dialects belong to at least 4 main linguistic families (without taking account of the still undeciphered written documents of the pre-Indo-European people of the Indus valley). Indeed, apart from the I.-E. L., there are various Dravidian languages (see under LINGUISTIC FAMILIES). Kolarian or Munda languages, spoken over the whole of central India, which are considered as having the Austro-Asiatic common substratum.

The Indo-Aryan branch is the most numerous and complicated of all the Indo-European branches. In the last cents. BC Sanskrit, which was originally a refined form of the language of the 'Madhyadesa' (the Indian homeland), developed into an artificial, literary language, the language of the Brahman civilisation. For many cents. it was the exclusive literary language of N. India. The Muslim invasion of India after AD 1000, followed by the final conquest, towards the end of the 13th cent., extinguished the Hindu political power (revived only in 1947) in N. India, and brought into use the Arabic-Persian script and the Persian influence on the Indian languages.

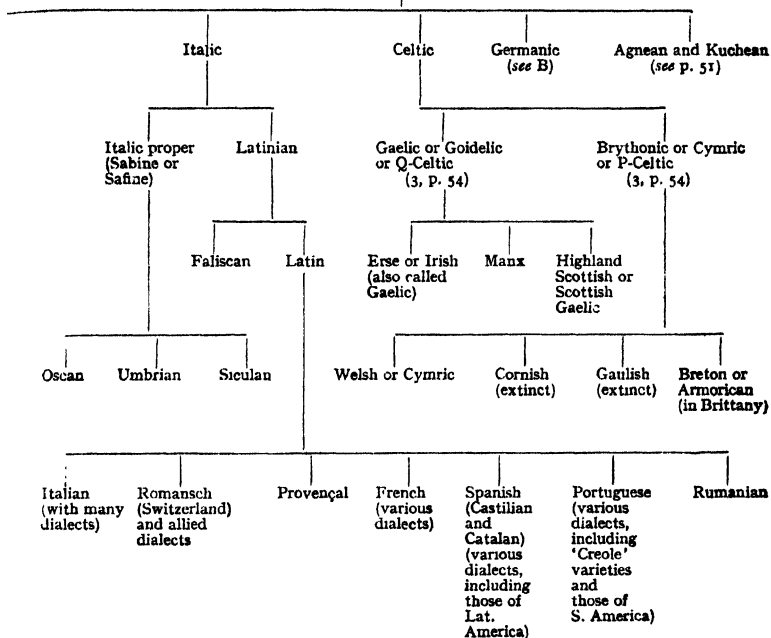
Roughly about this time, the Indian Prakrits or vernaculars began to develop into literary languages. The most important of them is W. Hindi (75,000,000 speakers); one of its various dialects, Hindustani, which was primarily the language of the N. Doab, was carried over the whole of India by the Muslims. The literary Hindustani became the modern literary language of India; early in the 17th cent. it was already known in England that Hindustani was the lingua franca of India; it is believed that nowadays it is spoken by some 65,000,000 people, and it is understood by nearly 150,000,000 people. One form, Urdu, which makes a free use of Persian and Arabic words, and employs the Persian-Arabic script, is used chiefly by Muslims and has become the official language of the new state of Pakistan. The other form, Hindi, is free from Persianisation, and owes more to Sanskrit; it is used by Hindus and is usually printed in the Devanagari character, the script of Sanskrit. Hindi (25,000,000 speakers) has 3 main dialects: Ewadhī, Baghelī, and Chhattisgarhī.

The chief languages of the central group are: (1) Punjabi (about 17,000,000 speakers), also spoken by the Brit. Sikh soldiers. The dialects are W. Punjabi or Lahnda, about 9,000,000 speakers, with 22 dialects. (2) Sindhi, about 4,500,000, with a dozen dialects. (3) Rajasthani, about 18,500,000, with the dialects of Malvi (4,500,000), Marwari, and many others. (4) Gujarati, spoken by about 11,000,000 people. (5) Kashmiri (about 2,000,000 speakers whose main dialect is Kustawari) is the most north-westerly language of this branch. Pahari ('of, or belonging to, the mountains') is spoken by about 2,500,000 people in *Sapadalaśha*; that is, the lower ranges of the Himalaya, from Nepal in the E. to Bhadravai in the W.; it can be classified into E., central, and W. Pahari; the last, having many dialects (such as Mandi, Sirmauri, Jaunsari, Chameali, Kiuthali, Kulul, etc.), is spoken by about 3,000,000 people.

More important is the E. group of the Indo-Aryan languages: Bengali (divided into sev. dialects) is spoken by about 55,000,000 people; Bihari (main dialects: Maithili or Tirhutī, Magahi, and Bhojpuri) is spoken by about 40,000,000 people; Oriya, comprising many dialects, is spoken

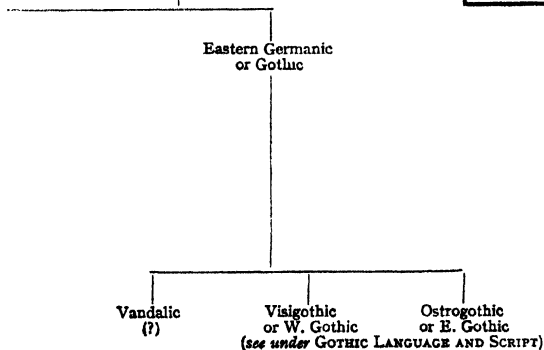


## PROTO-INDO-EUROPEAN



## PROTO-GERMANIC

## B. FAMILY TREE OF THE GERMANIC LANGUAGES



by about 12,500,000 people; and *see*, the most E. Indo-Aryan language, is spoken by about 2,000,000 people.

Only 3 Indo-Aryan languages are spoken in S. India, the most important of them being Marathi with about 23,000,000 speakers. Interesting is Konkani, a Marathi speech, with about 1,500,000 speakers in the Portuguese colony of Goa and surrounding dists.; it is mainly written in Rom. characters as adapted by the Portuguese priests. Saurashtri is spoken by about 125,000 people, mainly in Madras and Madras. In S. India the Muslims speak mainly Hindustani. Sinhalese (the language of Ceylon), spoken by about 4,000,000 people, must also be mentioned; although there are still some who maintain that it is essentially a Dravidian language, it is generally admitted by serious scholars that it is an Indo-Aryan speech strongly influenced by Dravidian. Finally, Romani, the language of the gypsies, in various parts of Europe and Asia, comprising numerous dialects strongly influenced by local languages, is generally considered an Indo-Aryan language.

(2) *Slavonic*. The earliest extant Old Slavonic documents belong to the end of the 10th and to the 11th cents. AD. They are couched in a language termed 'Early Ecclesiastical Slavonic' or 'Old Church Slavonic' or else 'Pannonian Slavonic' or 'Old Bulgarian,' and are written in the Glagolitic or the Cyrillic scripts (*see under ALPHABET*). The modern Slavonic languages can be divided into 3 geographical groups: E. (Russian, White Russian, and Ukrainian), W. (Polish, Czech, or Bohemian, Slovak, Wend, or Serbian, and Lusatian), and S. (Bulgarian, Serbo-Croatian, Macedonian, and Slovene).

(3) *Celtic*. The Celtic branch is commonly divided into 2 groups of languages, the Gaelic and the Cymric, which, respectively, are also termed Q-Celtic and P-Celtic. In the former group the 'Proto-Celtic' combination of a guttural with a *w*-sound (like *kw* or *qu*) remains *kw* or *q* or changes to *c*; in the latter it changes into *p* or *pw*.

*See Meyer-Lübke, Grammatik der romanischen Sprachen, 1890-1902; K. Brugman, Grundriss der vergleichenden Grammatik der indogermanischen Sprachen (2nd ed.), 1897-1916, and Kurze vergleichende Grammatik der indogermanischen Sprachen, 1904; G. A. Grierson, Linguistic Survey of India, 1903-28; E. Hirt, Die Indogermanen, 1905; H. Pedersen, Vergleichende Grammatik der keltischen Sprachen, 1908-13; J. Schrijnen, Einführung in das Studium der indogermanischen Sprachwissenschaft (trans. from Dutch), 1921; A. Meillet, Le Slave commun, 1924, Grammaire du vieux-perse (2nd ed.), 1931, and Introduction à l'étude comparative des langues indoeuropéennes (7th ed.), 1934; K. Sandfeld, Linguistique balkanique, etc., 1930; E. Bourciez, Éléments de linguistique romane, 1930; E. Hirt, Handbuch des Urgermanischen, 1931; B. F. C. Atkinson, The Greek Language (2nd ed.), 1933 in the same collection; A. Ewert, The French*

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**Indo-Germanic Languages, see INDO-EUROPEAN LANGUAGES.**

**Indonesia**, rep. in SW. Asia, comprising *ters.* formerly known as the Dutch E. Indies (except Dutch New Guinea). The chief is. are Java, Sumatra, Borneo, and Celebes, many is. groups including Madoera, Timor, and Iliw archipelagos, Moluccas, Lesser Sundas, Bali, Halmahera, Lombok, Flores, Soembawa (q.v.v.), etc. Total area about 735,270 sq. m. Mainly volcanic in origin, the is. extend for some 3000 m. E-W, in the Indian and Pacific Oceans, between W. of the Malay Peninsula and Australia. The mt slopes are heavily wooded and the forests produce teak, sandalwood, camphor, and ebony. Agric. products include cinchona, rubber, tea, coffee, sugar, rice, sago, tapioca, palm oil, and copra. Mineral resources include tin, manganese, gold, silver, nickel, diamonds, coal, and oil. Numerous industries process native raw materials. Pop. about 75,000,000 including Malayan and Papuan groups, each with many sub-divs., Achinese, Batok, Dayak, Javanese, etc. The general physical type is small, with tawny skin, black hair, mesocephalic head, flat nose, and lozenge-shaped face. Muslims are in a great majority, then Animists. Malay is the official language, but 25 others are used. The fauna represent a connecting link between Asia and Australia. The cap. is Jakarta (formerly Batavia) in NE. Java. There are univs. at Jakarta, Jogjakarta, etc. The area was settled in the 14th cent. by Hindus and Buddhists, who were superseded by Muslims in the 15th cent. The Portuguese set up spice-trading posts in the 16th cent., and the Dutch and English before the end of that cent. The Dutch E. India Co. (1602-1798) achieved complete control of the archipelago; and except for a brief period during the Napoleonic wars, the Dutch kept this power until late in 1949. A Nationalist movement began early in the 20th cent., but only became widespread during the Second World War when the archipelago was occupied by the Japanese. In 1945 the Nationalists proclaimed the Rep. of I. with jurisdiction over Java, Sumatra, and Madura: the Dutch sponsored a number of autonomous states. After 5 years of hostilities and negotiations, the Indonesian

Rep. was finally created in Aug. 1950, and admitted to the U.N. in Sept. of that year. The gov. consists of a president and House of Representatives. There are 10 provs.: W. Java, cap. Bandung; Central Java, cap. Semarang; E. Java, cap. Surabaja; N. Sumatra, cap. Medan; Central Sumatra, cap. Padang; S. Sumatra, cap. Palembang; Indonesian Borneo, cap. Bandjamasin; Celebes, cap. Makassar; Moluccas, cap. Amboina; and Lesser Sundas, cap. Singaradja.

Since 1950 there has been widespread unrest in I. as demands for regional autonomy have grown. In 1950 Java and Borneo revolted. In 1951 a peace treaty was made with Japan but was not ratified until 1958. In the following year there was a major revolt in Atjeh, the defence minister being forced to resign because of a div. in the army, and in the same year a trade agreement was made with Yugoslavia. The Netherlands-Indonesian Union was dissolved in 1954 and in 1955 and 1957 there were revolts in the Celebes and Moluccas. In 1957 there was also a military conspiracy in Java; Dutch banks were seized and martial law was proclaimed on 4 Mar. An attempt was made on the life of President Soekarno (q.v.) in 1957.

**Indonesian New Guinea**, see NEW GUINEA.

**Indoor Gardening**, see WINDOW GARDENING.

**Indore**: 1. Former Princely State of central India with an area of 9900 sq. m. and a pop. of 1,500,000. It was one of the biggest Maratha states, carved out of the Mogul empire in the 18th cent. by the Holkar family. A highland area, crossed by the Satpura Hills in the S. and the Vindhya Mts on the N., it includes parts of the valley between, watered by the Nerbada, with fertile plains and well-wooded forests. I. grows wheat, timber, tobacco, and cotton, and there are some cotton-mills and other industries. It is now part of Madhya Pradesh (q.v.).

2. Cap. of the former state of I. Situated on the R. Sarasvati, 1700 ft above sea level, it is the largest tn in the Malwa highlands, and an important trading centre. It has a number of cotton textile and other factories. The Daly College was founded for the education of scions of Indian princely families. In Brit. times the Residency to the E. of I. was outside the jurisdiction of the State. Pop. 311,000.

**Indorsement**, writing on the back of an instrument something relative to and affecting the transaction evidenced by the instrument, e.g. the I. of a bill of exchange or cheque payable to order operates to transfer the right to payment to the indorsee or person to whom the indorser hands the bill or cheque. The I. of a negotiable instrument may be 'blank,' i.e. where the name of the indorser only is written on the instrument, the effect being that the instrument becomes payable to bearer; or 'conditional,' i.e. the property in the instrument is transferred subject to some contingency being fulfilled; or

'qualified,' i.e. which enlarges, restricts, or otherwise qualifies the liability of the indorser; or 'special,' where the name of the indorsee is inserted; or 'restrictive,' i.e. it restricts the negotiability of the instrument to some particular purpose or person. For the Cheque Act of 1957 see CHEQUE.

**Indra**, in Indian mythology, the ruler of the bright firmament who stands at the head of the heaven of the gods. In Vedic poetry he is represented as performing wonderful deeds for the benefit of good men, at the same time possessing all the attributes of a warlike god.

**Indre**, dept of central France, formed of parts of the anct provs. of Berry, Orléanais, Marche, Touraine, and Poitou. It is drained by the Indre and the Creuse. It comprises 3 main dists.: the Boischaut, in the S., a wooded, marshy plain; the Champagne, a fertile agric. area; and the Brenne in the W., a region of moors, marshes, and ponds, now considerably improved by drainage and afforestation. Sheep are reared in Champagne. The chief products are vines, fruit trees, cereals, beet, and vegetables. Poultry is also raised. The chief manufs. are textiles, paper, leather goods, and pottery. The prin. tns are Châteauroux (the cap.), Le Blanc, La Châtre, and Issoudun (qq.v.). Area 2664 sq. m. Pop. 247,450.

**Indre-et-Loire**, dept of central France, formed of most of the anct prov. of Touraine, and of parts of Anjou, Poitou, and Orléanais. It is drained by the Loire and its tribs., principally the Indre, Cher, and Vienne. The chief dists. of the dept are the Gâtine, a plateau of woods and plains N. of the Loire; the Champagne, a chain of vine-clad slopes between the Cher and the Indre; the Veron, a dist. of orchards and vines between the Loire and the Vienne; the unproductive plateau of Ste-Maure; and the marshy dist. of Breune. The chief products are wine, grain, and fruit. There are some textile and paper manufs. The prin. tns are Tours (the cap.), Chinon, and Loches (qq.v.). Area 2377 sq. m. Pop. 364,700.

**Indri**, or *Indrina* (*Indris brevicaudata*), sub-family of the Lemuridae, large monkey-like lemurs inhabiting Madagascar, especially the E. coast forests. They were first discovered 1780, are black and white in colour, of diurnal habits, and live chiefly on fruit. See LEMUR.

**Inductance**, or coefficient of self-induction of a coil or piece of apparatus or a network, is the magnetic flux generated by unit current and threading the circuit. A coil of  $n$  turns through which a flux  $\phi$  is produced by the current  $i$  has an inductance  $\frac{n\phi}{i} = L$ ,  $n\phi = Li$ . The voltage

induced by varying flux,  $\frac{nd\phi}{dt} = L \frac{di}{dt}$ .  $\therefore$  the inductance  $\times$  rate of change of current. See HENRY and ELECTROMAGNETIC INDUCTION.

**Induction**, Eng. Church ceremony for giving possession of a benefice to a clergyman. The I. is performed after a

mandate from the bishop to the archdeacon (or dean and chapter). The inductor takes the clergyman's hand and lays it on the key of the church door. The clergyman is then admitted, and tolls a bell as a public notification to his parishioners. The incumbent's possession is completed by 'reading himself in,' reading the Thirty-nine Articles, promising to accept them and conform to the rules of the Church.

Induction, in logic (q.v.), the process of real inference, or the proceeding from the known to the unknown. This operation of *discovering* and *proving* general propositions is contrasted with deduction, which is the method of *applying* general propositions once discovered to such particular cases as are considered to be within the scope of the estab. propositions. The great exponent of deductive principles. Aristotle, neglected I., and only identified it with a complete enumeration of facts. Bacon's *Novum Organum* contains little true I., though it contains directions for drawing up the various kinds of lists of instances. Whewell's *Philosophy of the Inductive Sciences*, 1840, marks a distinct advance, and shows a due appreciation of the cardinal point neglected by Bacon—the function of theorising in inductive research. He shows that science advances only in so far as the mind of the inquirer is able to suggest organising ideas whereby experiments and observations are made to dovetail into an intelligible system. J. S. Mill in his *System of Logic, ratiocinative and inductive*, 1843, ignores the constitutive work of the mind, and regards knowledge as the merely passive reception of impressions. Recent advances in mental science have estab. the great importance of I., and clearly show that the most valuable faculty in scientific inquiry is that of suggesting new and valuable hypotheses. See also LOGIC. See J. S. Mill (above) and A. Lalande, *Les Théories de l'induction et de l'expérimentation*, 1929.

**Induction, Electro-magnetic.** Faraday was the first to discover the phenomenon of electro-magnetic I. The following are practically the same experiments that Faraday performed. Take a cylindrical coil consisting of many turns of fine wire wound on a hollow reel (Fig. 1). Connect the ends of the coil to a delicate galvanometer. Bring the N. pole of a magnet rapidly towards one end of the spiral. The needle of the galvanometer will be deflected in one direction. Now suddenly withdraw the magnet again. The needle is deflected in the opposite direction. It can be seen that the deflection is not permanent, but takes place only when lines of force are being introduced into, or taken away from, the coil. It can be shown that the current induced is also proportional to the rate at which the magnet is introduced. Now, instead of the magnet, use a coil wound on a thin cylinder through which a steady primary current is flowing. It will be seen that when this primary coil is introduced deflection of the galvanometer needle takes place, and when it is withdrawn a deflection in the opposite direction occurs. It

can also be noted that a current is induced in the coil, which is called the secondary coil, in the same direction as the primary current whenever the number of tubes of magnetic induction threading the secondary circuit is *diminished*, and in the contrary direction if the number is increased. Thus attraction will occur between the coils when the tubes are diminishing; that is, when the primary coil is being removed, and repulsion when it is being brought nearer the secondary coil. Thus the induced current is such that it tends to stop the motion producing it. This is Lenz's law. Faraday, from the result of his experiments, explained the action of Arago's

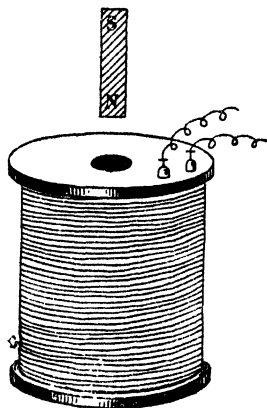


FIG. 1

disk. This consists of a compass needle placed above a horizontal copper disk which is rotating in its own plane. It is found that the needle moves with the disk. Faraday stated that by the motion of the disk relative to the needle, eddy currents were induced in the disk, and these were such that they tended to stop the relative motion of the needle and disk. Thus the needle is dragged around with the disk. In further experiments with the 2 coils it is found that currents are produced in the secondary coil when the current in the primary coil is suddenly stopped or commenced. Faraday showed experimentally with his apparatus that the induced current in the secondary coil depends on the rate of change of the number of tubes of force threading the coil. This result is embodied in Neumann's Law which states that the induced E.M.F. in a stationary circuit is equal to the rate of decrease of magnetic flux threading the circuit.

**Coefficients of induction.** The number of tubes of magnetic I. which thread a circuit when unit current is flowing round it is called the coefficient of self-I. of the circuit. It is obvious that when the

current in the primary is stopped, these tubes suddenly diminish. A current is then induced in the primary coil itself such that it tends to prevent the diminution of the primary current. When the current is started the induced current in the primary coil tends to prevent the current starting. The number of tubes of magnetic I. threading a given circuit when unit current passes through another is said to be the coefficient of *mutual I.* of the 2 coils. We know that the magnetic field inside a solenoid when unit current is passing is  $4\pi n$ , where  $n$  is the number of turns per unit length. The area of a single turn is  $\pi r^2$ , and thus that of  $nl$  turns is  $\pi r^2 nl$  ( $l$  is the length of the solenoid). Thus the self-I. of the solenoid is  $4\pi n^2 r^2 l$ . This discovery by Faraday of electro-magnetic I. has led to vast progress in electric machines. Practically all modern electrical machinery depends on the I. of currents.

The *Ruhmkorff induction coil* enables us to obtain an intermittent current at high voltage from a low voltage direct current. The primary coil, P (Fig. 2), consists of a few turns of *thick* copper wire. The secondary coil, S, is wound over the primary, and consists of a vast number of turns of very fine wire. Both the coils are wound on a bundle of soft iron rods, AB. The primary current, which is supplied by a cell or number of cells, C, is broken at frequent intervals of time. One method of doing this is as follows: One terminal of the primary coil is connected to a fixed platinum stud, D, the other terminal to a spring which carries a piece of soft iron, E. When the spring is unbent it touches the stud D and a current passes in the primary. The core of soft iron becomes magnetised and attracts the soft

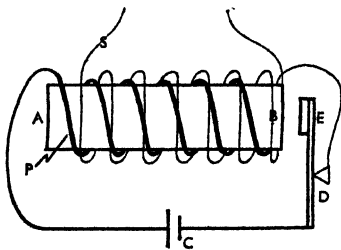
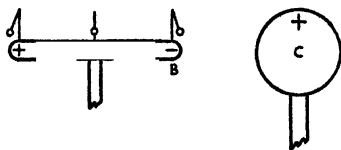


FIG. 2

iron disk, E, thus breaking contact at D. The current is stopped, and the core immediately becomes unmagnetised, the spring flies back and contact is again made. The process is then repeated. When the contact in the primary is broken, a current flows in one direction in the secondary coil, when it is made the current flows in the opposite direction in the secondary. Thus an alternating current of high voltage is set up in the secondary. In practice a condenser (not shown in the diagram) is

connected between C and D and in parallel with the spark gap at D. One function of this condenser is to suppress sparking at the gap, and it causes the decay of current in the primary coil to be much more rapid than its growth, with the result that the intermittent current in the secondary is practically a unidirectional one.

**Induction, Electrostatic.** Consider an insulated conductor C which is positively charged. Suppose AB is an insulated, uncharged conducting cylinder on which



ELECTROSTATIC INDUCTION

3 pith balls are suspended, as shown in the diagram. When C is far from AB the pith balls all hang vertically. When C is brought near to one end of AB (say the end B), the end B becomes charged with electricity of the opposite sign to that of C, whilst the end A is charged with electricity of the same sign as C. There is no charge on the middle parts of AB. This is shown by the fact that whilst the pith balls on the ends are deflected from their stands and away from AB, the middle ball is undeflected. (A more rigorous explanation is possible in terms of electric potential, q.v.) If AB is touched with the finger or otherwise connected to earth, whilst still under C's influence, it loses its charge at the end A. If C is now removed, the body AB becomes uniformly charged with electricity of the opposite kind to that of C. AB is then said to be electrified by I. or influence. It is obvious that these phenomena can be explained from the fact that like charges repel, and unlike charges attract, each other. The unelectricified cylinder is considered to have an equal quantity of positive and negative electricity. Electric I. allows an unlimited number of charges to be obtained and all friction machines are based on this principle. See ELECTROSTATICS; ELECTROPHORUS; ELECTROSTATIC MACHINES.

**Induction, Magnetic.** Magnetic substances like iron become magnetised under the influence of magnetic force. If a N. pole were placed near a bar of iron, a S. pole would be induced on the end of the bar nearer the pole. Attraction would take place, and the bar of iron would move into a stronger part of the field. If the bar were of bismuth, a N. pole would be induced on the end nearer the N. pole of the inducing magnet and the bar would tend to move into the weaker parts of the field. A substance that is attracted by a magnet is termed a *paramagnetic* and a substance such as bismuth which is repelled is termed a *diamagnetic* substance. A substance such as iron which is strongly attracted is

termed a *ferromagnetic*. The magnetisation induced on the bar is measured by the resulting magnetic moment. The *intensity of magnetisation* is the magnetic moment per unit vol. Soft iron becomes more strongly magnetised than steel, i.e. it is more *susceptible* to magnetisation than steel. *Susceptibility* is measured by the ratio of the intensity of magnetisation to the magnetic field. This magnetic field is that field actually within the bar as found in a long needle-shaped cavity cut in the

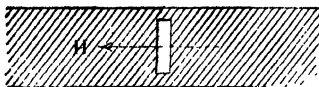


FIG. 1

iron parallel to the applied field. If a thin disk-shaped cavity (Fig. 1) were cut in the iron perpendicularly to the magnetising field  $H$ , the force on a unit positive pole placed in this cavity is defined as the magnetic  $I$ ,  $B$ . It can be proved that  $B = H + 4\pi I$ , where  $I$  is the intensity of magnetisation. Therefore  $B = H(1 + 4\pi K)$  (where  $K$  is the susceptibility). The ratio of the magnetic  $I$  in the iron to the magnetic field is called the *magnetic permeability*,  $\mu$ .

$$\therefore \mu = 1 + 4\pi K.$$

Diamagnetics have a -ve  $K$ , and hence  $\mu < 1$ . Paramagnetics have a +ve  $K$ , and hence  $\mu > 1$ . For ferromagnetics  $\mu$  varies with  $B$ , the initial value for soft iron being about 250, and for certain alloys (e.g.

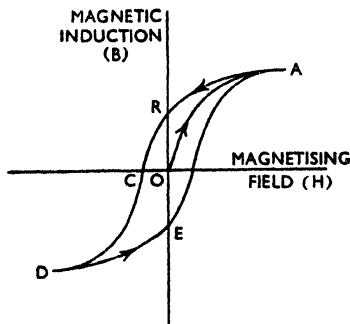


FIG. 2

Mumetal)  $\mu$  can have initial values of 20,000. If a bar of iron is placed in a magnetic field, which is gradually increased in intensity from zero, it is found that the relation between  $B$  and  $H$ , when plotted, gives a curve such as  $OA$  (Fig. 2). When the magnetising field is reduced, the relation between  $B$  and  $H$  does not give the curve  $AO$ , but another curve such as  $ARCD$ . In fact, the iron may be taken through a cycle such as  $ARCD$ . The name of *hysteresis* has been given to this

phenomenon. The  $I$  (OR) retained by the iron when the applied field is reduced to zero is the *residual magnetism* and the effect is known as *remanence*. The value of the reversed magnetic field (OC) required to reduce the  $I$  to zero is known as the *coercive field*.

**Induction Coil**, see INDUCTION, ELECTRO-MAGNETIC.

**Induction Furnace**, see METALLURGY (METALLURGICAL FURNACES).

**Indulgence**. This term, in Rom. Catholic theology, signifies the remission of the temporal penalty of sin, granted to a repentant sinner by Church authority. The  $I$ , however, is never considered a sacramental remission of the sin itself. Although the first recorded instance of the use of the word  $I$  was in the 11th cent. by Alexander II, the institution was found in full development during the wars of the Crusades. Serving in these was accounted an equivalent substitute for penance, provided always the service was from motives of devotion and not from mere greed or love of glory. Later, military service as a condition for  $I$ s was replaced by pilgrimages to certain great shrines.  $I$ s may be given by the Pope, and by primates and bishops within the limits of their jurisdiction. In modern times they are usually attached to works of devotion or good works of any kind in the form of remission of part or all of what would have been the old canonical penance for sin.

**Indulgence, The Declaration of**, issued by James II of Great Britain in 1687. A second Declaration was issued the following year. Both had for their ostensible object the suspension of all laws tending to force the consciences of the king's subjects—their real object being to relieve the Rom. Catholics. They were very unpopular, and the culminating point of the universal dissatisfaction was testified in the refusal of the 7 bishops (q.v.) to order their clergy to read the second Declaration aloud from their pulpits. See JAMES II.

**Indus**, S. constellation between Grus and Pavo. The chief star (of 3.2 magnitude) gives a solar spectrum. Near by are the clusters of Tucana and Telescopium.

**Indus**, great riv. of Pakistan, rising in the Kailas mt group, near the sources of the Brahmaputra, Sutlej, and Gogra. For upwards of 500 m. it flows in a NW. direction; at first by the foot of the Himalayas on the Tibet plateau, then through Kashmir, between the chains of Ladakh in the N. and of Zaskar in the S., amid mt scenery unmatched by any in the world. Here it receives the waters of the Shyok, the largest trib. of this its upper course. As it leaves Kashmir to enter the Punjab it turns to the SW., and emerging from the mt regions is joined at Attock by the Kabul R., from Afghanistan. From this confluence it continues to run in a SW. direction for another 1000 m. till it enters the Indian Ocean in delta form some 50 m. S. of Karachi. About the middle of this lower course through the plains it receives one great affluent, composed of the united



waters of the Sutlej, Chenab, Ravi, and Jhelum, which with the I. itself make the Five Rivs. of Punjab. It loses much water from passing through desert regions, but is navigable up to Attock at all seasons. During the melting of the mt snows, from May to Aug., destructive floods often occur. It is spanned by sev. bridges, even in its upper mt courses—the iron railway bridge at Attock and the cantilever 'Lansdowne Bridge' at Sukkur being triumphs of engineering skill. The total length of the I. is nearly 2000 m., its minimum width is 500 ft, and depth 9 to 10 ft. See Haij, *The Indus Delta Country*, 1894. See also INDUS VALLEY CULTURE.

**Indus Valley Culture**, term used to denote a well-marked prehistoric culture in this area of India. Its chief centres were the cities of Mohenjo-daro, 25 m. S. of Lakarna in Sind, and Harappā in the Punjab, the name Harappā being commonly used to describe the culture. Many other small tns, vils., and trading-posts which have been discovered show that a great prehistoric empire was widespread in the Indus valley. The riv. system was doubtless the geographical feature of its existence. Mohenjo-daro was excavated in 1922 and subsequently, but unfortunately not by modern methods, though the various discoveries made have provided a basis for later study. The N. of the twin cities, Harappā, was investigated in 1920 and later, but it was not until Sir Mortimer Wheeler's excavations in 1946, when he was director-general of the Archaeological Survey of India, that its great importance was realised, and the defences of its citadel were recognised for the first time. The Harappā culture, with its standard mass-produced pottery, standard weights, and building plans, has a remarkable uniformity which points to a rigid and highly evolved economic and social organisation. Its beginnings are not known, though they could scarcely be outside India itself; it had affinities and contacts with the anct civilisations of Sumer and the Mediterranean. The Indus people lived in well-built brick houses which were provided with baths, wells, and elaborate drainage systems. Mohenjo-daro and Harappā were laid out in grid-iron tn plans. Tools and weapons were of cast and forged copper and bronze, iron being unknown. Grain was grown in quantity; cotton was known; and domestic animals included the ox, buffalo, goat, sheep, pig, dog, cat, horse, and camel. There was an active trade in metals and semi-precious stones, and artistic products included sculpture in the round inlaid with metals, and steatite stamp-seals engraved with a script which has not yet been read. Religion seems to have been centred on a rule by powerful priest-kings. Many clay figurines suggest the worship of a mother-goddess, perhaps in essence an earth-goddess, and a male god depicted on stamp-seals may be a forerunner of the great Hindu god, Shiva. At the height of its maturity the Harappā culture was not earlier than 2500 bc. It was overwhelmed c. 1500 bc by barbarian conquerors from the W. See Stuart

Piggott, *Prehistoric India*, 1952; Sir Mortimer Wheeler, *Cambridge History of India* (supplementary vol., *The Indus Civilisation*, 1953). Both have good bibliographies.



INDUS VALLEY CULTURE  
Sculpture from Mohenjo-daro.

**Industrial Accidents**, 'accidents rising out of or in course of employment.' For statistical purposes, an accident is regarded as one which is either fatal or disables the workman for more than 3 days from earning full wages for the work at which he was employed. Such accidents are classified according to their severity: whether the results are fatal, and if non-fatal whether permanent or temporary. A table of frequency rates for 2363 factories employing 2,245,015 persons (or about 10 per cent of all Brit. factory employees) gives a rate of 1.62 for all the listed industries during 1954 and is useful as a guide to the industries producing most accidents. The tables on p. 60 show the percentage relationships of totals of accidents for 1947 and 1954 to the accidents in 1937.

Typical figures of direct causes of accidents in Brit. factories are as follows (percentage of total accidents for 1954): power-driven machinery, 16.27; molten metal or other hot corrosive substances, 3.94; hand tools, 8.25; struck by falling body, 8.62; persons falling, 13.80; stepping on or striking against objects, 7.95; handling goods, 26.90; other causes, 14.21. These figures show that what are known as non-machinery accidents accounted for 83.73 per cent of the total.

See also WORKMEN'S COMPENSATION.  
See *British Journal of Industrial Safety*, 1948, and *Annual Report of Chief Inspector of Factories*, 1954 and 1955, H.M.S.O.

Year	Number of Fatal Accidents					
	Factories	Docks and Warehouses	Building Operations	Works of Engineering Construction	Total	Total per cent of 1937
1937	716	105	182	—	1003	100
1947	516	70	218	35	839	84
1954	514	40	172	42	768	77

Year	Number of Non-fatal Accidents					
	Factories	Docks and Warehouses	Building Operations	Works of Engineering Construction	Total	Total per cent of 1937
1937	176,013	8303	8223	—	192,539	100
1947	185,231	7819	8251	1096	202,397	105
1954	167,476	7594	13,731	2130	190,931	99.5

**Industrial and Provident Societies.** Societies which can be registered under the Industrial and Provident Societies Acts of 1893-1928 are those formed to carry on any industry, business, or wholesale or retail trade authorised by the rules, including dealings in land. To a certain extent the rules of registration and general statutory regulation of these societies are assimilated to those of friendly societies. Modern I. and P. S. are divisible into co-operative and building societies (q.v.). The primary characteristics of I. and P. S. are indicated by the description: 'Industrial' connotes the making of a profit by the mutual personal exertions of the members, while 'provident' emphasises the providing for the future of the members by the distribution of the profits. The hist. of I. and P. S. shows that it was long before they gained public confidence, or even met with legal recognition. According to Brabrook, they were viewed with mistrust because they became associated with ever wider schemes enunciated by promoters who probably looked upon them as socialistic organisations. Robert Owen's projects were especially illustrative of this idea. The first legal recognition of co-operative societies was in the Friendly Societies Act of 1846. The basis of the law of I. and P. S. is now to be found in the Consolidated Industrial and Provident Societies Act, 1893. No member of I. and P. S., other than a registered society, may hold more than £200 in shares. Each society must make an ann. return of its receipts and expenditure, funds and effects to the Registrar of Friendly Societies. On the application of one-tenth of the members or of 100 where the membership is 1000 or more, the registrar may appoint an inspector to investigate the affairs of the society. The Prevention of Fraud (Investments) Act of 1939 requires some societies of the investment trust and property type to transfer their registration under the Industrial and Provident Societies Acts to registration under the Companies Act, 1929, and in consequence they must conform to the prospectus provisions of the

latter Act; but they are free of the normal companies' registration fees and stamp duties on paid-up share capital. From the passing of the Act of 1929 registration under the Industrial and Provident Societies Acts was restricted to bona fide 'co-operative' organisations, including societies 'conducted mainly for the purpose of improving the conditions of living, or of otherwise promoting the social well-being, of members of the working classes'—the principle which underlay the old Industrial and Provident Acts although not expressly enacted. Before the Second World War there were 5693 registered societies, with a total membership of 9,283,000 and funds of £281,507,000. See CO-OPERATION and FRIENDLY SOCIETIES. **Industrial Conciliation**, see CONCILIATION, INDUSTRIAL.

**Industrial Court**, permanent court set up as a result of the Whitley Committee of 1918 in which disputes between workmen and employers can be investigated and referred for arbitration or other solution in the event of no mutual agreement. See WHITLEYISM.

**Industrial Design.** The advent of the machine brought new problems in the production of objects of use, including those newly invented and those formerly made by craftsmen who were also artists. The tendency was to imitate by mechanical means the pattern and ornament of earlier times, and this was a Victorian misunderstanding only gradually overcome. The simplicity of Wm Morris's furniture was a step in the right direction, but this was a return to handicraft. In a strict sense, design for industry meant specific planning for what machines were fitted to turn out. The Victorian schools of design realised the problem but did not know how to tackle it. Improvement has

been made since its slogan of 'Fitness for Purpose,' and notably on the Continent by the Bauhaus, estab. in Germany after the First World War, under the direction of Walter Gropius. Brit. art schools have also instituted systematic training in

I. D. in recent years. In the U.S.A. much attention has been given to the subject, and expert industrial designers like Raymond Loewy and Walter Dorwin Teague have redesigned (or alternatively 'restyled') a host of products, from locomotives to refrigerators and sewing-machines. The importance of appropriate and attractive design in winning export markets has been recognised in Britain by the institution of a special faculty, Royal Designers for Industry (R.D.I.), and after the Second World War by the creation of the advisory Council of I. D. See H. Read, *Art and Industry—the Principles of Industrial Design*, 1934.

**Industrial Design**, Council of, organisation set up in 1944 whose purpose is to promote by all practicable means the improvement of design in the products of Brit. industry. It is financed by the Brit. Gov. The word design is taken to cover the many processes in the planning of goods for hand production, but more especially for quantity production by machine, and to include structure, texture, form, and decoration. Good design is taken as meaning both practical convenience and beauty. The main functions of the council are to help industries to set up design centres which operate on a co-operative basis, supported by contributions from the firms in each industry, with the addition of a grant from the Exchequer; to hold and take part in exhibitions; to publicise good design both independently and in collaboration with those adult education and voluntary associations which are concerned with design appreciation; to co-operate with education authorities and others in the training of industrial designers; to advise gov. depts on the design of goods which they purchase; and to be a centre of advice and information on all matters of I. D. for industry, gov. depts, and other interested bodies. The industrial div. of the council offers manufacturers, designers, and interested bodies a general advisory service for the promotion of improved I. D.; the information div. includes sections which offer specific services to educational bodies of every kind, to industry, and to the public. The offices are at Tilbury House, Petty France, London, S.W. 1. See **INDUSTRIAL DESIGN**. See also the council's magazine, *Design*.

**Industrial Diamonds**, see **DIAMOND**.

**Industrial Diseases**, see **INDUSTRIAL WELFARE AND OCCUPATIONAL DISEASES**.

**Industrial Hygiene**, see **HYGIENE** and **INDUSTRIAL WELFARE**.

**Industrial Insurance**. In its beginning I. I. consisted of 'burial societies' through which the working classes, by payment of small weekly sums to a mutual society, received sufficient money to defray funeral expenses when the need arose. From these comparatively obscure societies the great business of I. I. of to-day developed. A demand for whole-life insurance followed the modest requirements of 'burial funds', and this demand was satisfied by the innovation of premiums which could be paid weekly or monthly and the issuing

of policies for smaller assured sums. These premiums are collected at the houses of the policy-holders, and it is this 'collection,' coupled with the weekly or monthly payments, which distinguishes I. I. from ordinary insurance, where premiums are usually paid annually for larger assured sums. The official limit which marks insurance as industrial is that the premiums must be collected at intervals of less than 2 months, while the sum assured must be less than £1000. This demarcation was embodied in the Act of 1923. Associated with the I. I. companies are the Friendly Societies: the administration of both is governed by the statutory measures of the same Act, and the Industrial Assurance and Friendly Societies Act, 1948. All such companies must be registered and pay a substantial deposit to the Chief Registrar, who has authority to hear and judge disputes arising out of claims, criticise balance-sheets, hold inspections, reject unsound valuations, and even direct the winding up of unsatisfactory companies. The Industrial Assurance Act of 1923 was further extended by the Industrial Insurance and Friendly Societies Act of 1929, which is concerned with (1) the computation of the minimum sum payable at death under the age of 10, and (2) the validation of the 'life of another' endowment insurance. But important amendments of the law were made by the Act of 1948. This Act (section 6) contains a prohibition of insuring money to be paid on the death of a child under 10, or, in other words, it prohibits insuring so as to render any sum payable under the insurance on the death of any person at any time before he or she attains the age of 10 years (otherwise than by repayment of the whole or any part of premiums paid). This prohibition also applies to registered or unregistered friendly societies or trade unions. By section 2 power is given to insure the life of a parent or grandparent for not more than £20, but only in respect of a person who at the time of the proposal is ordinarily resident in Great Britain; and the Act prohibits alienation of such insurances. The former power conferred on I. I. companies (and Friendly Societies) to insure money for funeral expenses is also abrogated by the Act; while, by another provision, liability on policies will not be restricted on grounds of health of the person upon whose life the assurance is taken out, if the proposer's knowledge and belief have been properly disclosed.

Like many other Brit. institutions, industrial life insurance has completely changed its purpose during its existence, besides being radically reformed. It began, as implied above, in the desire of every working man to guard himself and his family against the danger of a pauper's grave. It was to permit the inclusion of the family that Parliament allowed in this sphere alone the insurance of the life of another—an exception to the general and salutary rule that no one might insure so as to benefit financially from another's death. With the payment under the

National Insurance Act, 1946, of death benefit as from 1 July 1949, the whole original cause of I. I. comes to an end. Some thought that on the principle of *cessante ratione cessat lex* the institution of I. I. should be ended. But its potentialities for good in the future should guarantee its continuance, especially as the worst abuse has been removed by the Act of 1948. I. I. to-day has been transformed into a flexible system which enables the wage-earner (already compulsorily insured so as to guarantee him a minimum standard of living in all the changes and chances of life and a decent funeral when he dies) to assure for himself and his family all those infinitely diverse benefits at various monetary levels which he desires and for which he is willing to pay. The main remaining criticisms of I. I. to-day are its relatively high cost and the number of forfeitures. No fewer than 910,000 policies were forfeited in 1948, but this was a great improvement on 2,610,000 in 1938 and 3,160,000 in 1929. It may be added that the size and importance of I. I. are shown by the fact that the institution draws annually more than £110,000,000 from the pockets of wage-earners.

As administrator of the Industrial Assurance Act of 1923, the Chief Registrar of Friendly Societies is styled the Industrial Assurance Commissioner (offices: 17 North Audley Street, London, W.). See ann. reports of the Industrial Commissioner.

In the U.S.A. and Canada a similar system of I. I. operates. In the former country the administration is directed by the gov. of the separate states, and not by the Federal Gov. while in the latter control is vested in the Dominion Gov. under the provisions of the Dominion Insurance Act of 1927.

**Industrial or Occupational Psychology.** branch of psychology concerned with man in relation to his working life. The subjects dealt with can be grouped under the 2 headings of Fitting the Man to the Job and Fitting the Job to the Man. Under the first come vocational guidance, personnel selection and allocation, and occupational training. Under the second fall physical environment, working spoils, the design of equipment, working methods, attitudes of workers to their employment, and problems of communications and relationships. A good adjustment between the individual and his job means better satisfaction and health at work and also a higher level of effectiveness. Good adjustment depends on capacity for the work, developed by training, on the suitability of the machinery, equipment, and methods from the human point of view, and on satisfactory relationships between the people in the organisation. The development of the subject in Great Britain began with the work of the Health of Munition Workers Committee in 1915 and was continued by the Industrial Fatigue (later Health) Research Board of the Medical Research Council and by the independent National Institute of

Industrial Psychology (14 Welbeck Street, London, W.1), founded in 1920. The Medical Research Council maintains interest in the subject through its Industrial Psychology Research Unit, attached to University College, London.

In the U.S.A. industrial psychology began to develop about the same time as in Great Britain, but followed rather different lines, being particularly concerned with the selection of workers for particular jobs. Later attention was paid to personnel techniques such as job evaluation, merit rating, and supervisor training. The study of working environment, particularly the design of equipment, received great impetus during the war and has led to the development of a separate branch of the subject in the U.S.A. which is called Human Engineering.

**Industrial Party,** organisation alleged to have existed in Soviet Russia in the late 1920's, consisting of leading technicians and aiming at undermining the Soviet regime through industrial sabotage. The show trial of I. P. members in Moscow in 1930 (including its alleged leader Prof. Ranzin) was an important stage in the persecution of the technical intelligentsia. See also PAL'CHINSKIY.

**Industrial Relations (Britain).** In Britain, unlike the position in many foreign countries, the relations between employers' and workers' organisations have been developed on a voluntary basis over many years. Collective bargaining between employers and work-people has for many years been recognised in Britain as the method best adapted to the needs of industry and to the demands of the national character in the settlement of wages and conditions of employment. It has produced a well co-ordinated system of conventional working arrangements affecting in the aggregate large numbers of work-people and defining, generally with great precision, almost every aspect of I. R.

**Historical and legislative development of organisations of employers and work-people.** Organisation of employers and workers grew with the development of modern industry from the 18th cent. In the 16th cent. the State regulated wages and conditions, and at the same time prohibited combinations both of workers and of employers from altering wages and conditions of work. But with the in-

ditions, in the *laissez faire* economy of the day, were left to be fixed by employers. During the 18th cent. further laws were passed prohibiting combinations in various trades, and as the result of the report of a parl. committee of inquiry the Combination Laws Repeal Act, 1824 was passed. This legalised trade societies, and the immunity thus granted to combinations for the regulation of wages and conditions led to the widespread formation of unions. This led to disputes and strikes and to agitation for the repeal of the Act of 1824. An amending Act in 1825 limited the

activities of the trade societies, making it difficult for them to take effective action without infringing the law; but the Act legalised the right to withhold labour by collective action, and this fundamental right has never been abrogated despite many changes in the powers permitted to trade unions. The immediate result of these developments was an expansion of union organisation, and the conception of one big union with a political bias emerged. Later there was concentration on industrial amelioration through smaller but stronger organisations whose aims were confined to securing recognition and improvement in wages and conditions of work. Strikes were frequent from 1825 to 1871. A Royal Commission of 1867 reviewed the position of trade unionism, and consequent on their recommendations 2 important Acts were passed in 1871—the Trade Union Act and the Criminal Law Amendment Act. The Trade Union Act of 1871 is the prin. Act on which the present-day status of unions is founded. The Criminal Law Amendment Act qualified the freedom conferred under the Trade Union Act by providing penalties for violence, intimidation, molestation, and obstruction of any person in order to coerce him for trade purposes. Since then there have been many subsequent Acts, supported by a great body of case law, and the law has been codified. These measures and judgments include the Conspiracy and Protection of Property Act, 1875 (see CONSPIRACY); the Employers and Workmen Act, 1875, dealing with disputes between employers and workmen arising out of breaches of contract and allowing courts to adjust claims for wages or damages; the Trade Union Amendment Act, 1876, amending the definition of trade unions given in the Act of 1871; the Taff Vale Judgment of 1901 and the consequent Trade Disputes Act, 1906 (see *under* TRADE UNIONS); the Osborne Case, 1909, and the Trade Union Act, 1913 (*ibid.*); the Trade Union (Amalgamation) Act, 1917 (modified by the Societies (Miscellaneous Provisions) Act, 1940); and the Trade Disputes and Trade Unions Act, 1927 (see TRADE UNIONS). A period of trade depression followed the year 1875 and lasted for 2 decades during which trade unionism lost some of its strength. Strikes were common and nearly always unsuccessful. The unions confined themselves mainly to establishing such relations with employers as would ensure the maximum benefit in wages and conditions to the workers. When this phase passed a new unionism arose with a tendency towards a more active industrial policy and a reversion to the earlier idea of one big union. But the statutory position of the trade unions was unchanged throughout this period, though the historic judgments above mentioned resulted in the further legislation indicated. Since 1888 the trade union movement has been centralised in the Trades Union Congress, the objects of which are 'to promote the interests of all its affiliated organisations and generally to improve the economic and social

conditions of the workers.' Although the origin and main activities of trade unions lie in the industrial field, they have also a direct association with politics because of the connection between the Trades Union Congress and the political Labour party. A joint body, the National Council of Labour, which is composed of representatives of the General Council of the T.U.C., of the Labour party, of the Parl. Labour party, and of the Co-operative Union, is responsible for the consideration of questions which have both an industrial and a political implication.

Employers' organisations in the form of merchant guilds (see GUILDS) and livery companies (see COMPANIES, CITY) have been in existence in Britain since the Middle Ages. These bodies, which once dealt in some measure with both trading and labour questions affecting their craft, differed materially from employers' organisations under present-day conditions. These employers' organisations, like most other Brit. institutions, have developed to meet particular circumstances and do not conform with any uniform plan. Employers' organisations fall into 3 groups: those constituted for dealing with I. R. questions, including collective bargaining with trade unions and the avoidance of disputes; those which fulfil that purpose and, in addition, deal with trading questions; and those which deal only with trading questions and which are therefore irrelevant to this article. As regards the first 2 groups, the repeal of the Combination Laws and the development of trade unionism in the 19th cent. stimulated both an increase in the number of these employers' organisations and the expansion of their activities. The extent of the industrial field they cover is estimated at about 8 million workers. Some of these organisations are local in character and deal only with a section of an industry; others are national in scope and deal with the whole field of a particular industry; while in many of the chief industries there are local or regional organisations combined into national federations; but the degree of authority exercised by regional organisations over individual members, or by federations over affiliated organisations, varies considerably. Just before the Second World War there were about 270 national federations concerned with matters relating to the employment of labour and in addition about 1550 other employers' organisations consisting mostly of local or regional branches of the national federations (an analysis of these 1820 organisations classified according to industrial groupings will be found in the *Abstract of Labour Statistics of the United Kingdom* (1922-36)). After the Second World War the total approached 2000, although with the same ratio of local to national bodies. By 1919 there had been formed the National Confederation of Employers' Organisations (now called the Brit. Employers' Confederation) to secure the co-operation of the national federations in dealing with all questions arising out of the relations between employers

and their work-people. This confederation, consisting of federations employing about 70 per cent of the total industrial pop. of Britain, is the employers' counterpart of the T.U.C. for dealing with labour questions affecting industry generally. In that capacity the confederation has represented Brit. employers at the ann. conferences of the International Labour Organisation since 1919. This confederation and the T.U.C. have long been recognised as the authoritative channels of consultation between gov. depts and organised employers and work-people on matters affecting their respective interests, and at the outbreak of the Second World War the need for the closest co-operation was at once recognised. Accordingly there was estab. in Oct. 1939 a National Joint Advisory Council of 15 representatives nominated by each organisation. It was agreed that the scope of the council's functions was to include all 'matters in which employers and workers have a common interest,' while at the same time it was not to encroach on the jurisdiction of organisations concerned with particular industries. In May 1940 the council appointed a Joint Consultative Committee consisting of 7 representatives of the Brit. Employers' Confederation and the T.U.C. respectively to advise the minister of labour and national service on all matters arising in the period of emergency. See COLLECTIVE BARGAINING. See also *Industrial Relations Handbook*, H.M.S.O., and A. Beacham, *Economics of Industrial Organisation*, 1948.

**Industrial Revolution in Great Britain**, general description given to the changes brought about in social structure by the inventions of the 18th cent. In the later part of the 17th cent. Brit. industry had benefited by the immigration of foreign artisans, and many branches of cloth-making were learned from aliens like the Walloons, and silk-weaving from the Huguenots, who came over in 1685 after the Revocation of the Edict of Nantes. Paper-making, glass-making, mechanical toy-making, and the manuf. of clocks and watches were also among the activities estab. through aliens from the Continent. But the remarkable development of industry, due to the invention of machinery in the 18th cent. and to the exploitation of the coal-mines, dwarfed the preceding progress into insignificance and resulted in a rapid and vast increase of the pop. and in the standard of living.

Before the era of machinery weaving had been a cottage industry, and yarn spinning was a spare-time industry practised all over the land by women and girls at home. Then in 1738 came the invention by Kay of Bury of the flying shuttle, which obviated the old and slow process of carrying the weft through the threads of the warp; it enabled the weaver to double his output, and, in turn, led spinners to seek mechanical aids to meet the increased demand for yarn. The next important inventions were the spinning jenny of James Hargreaves in 1764, the invention of the water-frame spinning

roller of Richard Arkwright, and Crompton's 'mule,' a combination of Hargreaves's jenny and Arkwright's water-frame—all first applied to cotton-spinning (see COTTON-SPINNING AND MANUFACTURE). Twenty-five years later came Cartwright's power loom in its perfected form; by that year his Doncaster factory was equipped with a steam-engine, and a year or two later hundreds of his looms were selling to Manchester firms. Gradually the power loom was applied not only to the cotton but also to the woollen industry. The next stride was the general supersession of water-power by steam, a change which came with the utilisation of the coal resources of the country, when James Watt patented his steam-engine. Watt's various patents were taken out in 1781-5, after which time the change from water-power to steam made rapid progress, and mills and factories were set up near the coalfields, where fuel was cheaper. Later the ironmasters began to investigate the use of coal as a smelting fuel, and with improved methods the output from their furnaces increased by leaps and bounds.

All these inventions led to the elimination of the cottage or private worker and to the rapid growth of factories, and with them of the manufacturing towns of the N. of England. Pop. shifted and concentrated about the coalfields, so that places remote from the fields declined. Agriculture as a national industry suffered permanently. Pop. increased by nearly 20 per cent in the first half of the 18th cent., and Brit. trade and wealth were augmented beyond measure; e.g. exports rose fivefold from 1720 to the end of the cent.

The view that the I. R. brought bad working conditions and misery to the masses no longer holds the field. The working conditions of the early mills and factories were usually no worse than those of the 'Domestic System' of industry which preceded the Factory System. Moreover it was only when workers became congregated in factories that it became possible for the State to lay down standards and to ensure, by the inspection provided for in the Factory Acts, that they were observed. See, for the older view, J. L. and Beatrice Hammond, *The Rise of Modern Industry*, 1925, and for the new view T. S. Ashton, *The Industrial Revolution, 1760-1830*, 1948; F. A. Hayek (ed.), *Capitalism and the Historians*, 1954.

**Industrial Schools**, see APPROVED SCHOOLS.

**Industrial Trading Estates**. Estates providing and leasing sites and factories to groups of industries originated in the U.S.A. The first private enterprise estate in Great Britain, Trafford Park (Manchester), dates from 1898. Another was started at Slough (Bucks) in the 1920's. Later the gov., through the Special Areas Commissioners, set up similar estates in regions troubled by unemployment (now named Development Areas); the best known are Team Valley (Gateshead), Trofreston (near Cardiff), and Hillington (near Glasgow). These have been effective in bringing new industries

to places where older ones had declined. Under the Distribution of Industry Acts, 1945 and 1950, the Board of Trade now has powers to create such estates, to provide housing and public services, and to pay removal expenses of firms from other places (see TOWN AND COUNTRY PLANNING). See also Political and Economic Planning, *Report on Location of Industry*, 1939, and (Barlow) *Report of Royal Commission on Distribution of Industrial Population*, 1940.

have begun as a result of the impetus given to questions of health and welfare by the committees set up by the ministry of munitions in 1916 to safeguard the health of munition workers. Robert R. Hyde, who with Seebohm Rowntree was in charge of this work, subsequently, in 1918, founded the I. W. Society. In its early days much of the work of the society and similar agencies was devoted to coal-miners, and the increasing provision of pit-head baths was one of the



*Cadbury Bros. Ltd*

AMENITIES FOR THE WORKER: A DINNER-HOUR SCENE ON ONE OF THE WORKS RECREATION GROUNDS AT BOURNVILLE

**Industrial Welfare.** Since the First World War the question of I. W. has been increasingly important. It is concerned with the examination of the working and living conditions of industrial workers with the object of removing unnecessary hardships and providing amenities to mitigate the irksome nature of their work. There are many aspects to be reviewed in such service, including the study of health in industry and the proper selection of workers for suitable employment. These depts of I. W. concern the inside of the factory. Outside, such questions as housing, travelling, the visiting of the sick, recreation, etc., are dealt with. In a number of firms elaborate education schemes have been instituted, to provide both technical and social education so as to create better opportunities for advancement.

The modern movement may be said to

results. Subsequently the work in this industry was taken over by the Miners' Welfare Committee. The connection between the I. W. movement and most of the nationalised industries, however, continues to be close. The emphasis of the work has changed with the years, since many of the provisions for which the I. W. Society contended in its early days, as, for example, holidays with pay, have now been generally accepted in principle, and in many cases either within the national agreements or even incorporated in legislation. Moreover all firms of any size have now their own personnel depts with personnel officers trained to handle the human problems of industry. The Institute of Personnel Management is the professional organisation of personnel managers. While I. W. is still greatly concerned with health, amenities, recreation, and the like, more recent developments,

which are likely to continue, have been in the direction of establishing joint consultation machinery between management and worker and making an effort to see that it works efficiently. Works councils, set up to promote co-operation between workers and management, usually include in their functions the administration of welfare and social security schemes. Another subject which engages considerable attention is the selection and training of suitable men and women for posts of responsibility as foremen, supervisors, and so on. Attempts have also been made to extend the principle of I. W., which is recognised by all the larger firms, to the very many small ones, which in the aggregate represent such a large proportion of industrial workers, and where welfare provisions are not greatly developed. In short the main preoccupations of the I. W. Society to-day are in the field of human relations.

Both in Britain and in the U.S.A. (where I. W. is termed Industrial Hygiene) examinations are conducted into the problems of injury by dust and poisons and of ventilation and lighting. The medical service attacks such questions as periodical examination of workers, the establishment of dental and eye clinics, rest-houses for fatigued workers, while sanatoria and private hospitals are maintained in many industries. Research is conducted with assiduity and success, and that the movement is justified is proved by the fact that in both countries the days of labour lost by illness have considerably declined. Modern methods in factory building and lay-out have of course much influence on the provision of amenities. See also MENTAL TESTS. See *Annual Report of H.M. Chief Inspector of Factories*; pubs. and journs. of I. W. Society and the Brit. Institute of Management; Cadbury Bros. Ltd, *Record*, 1919-1939, 1939; E. Mayo, *The Social Problems of an Industrial Civilisation*, 1949.

**Industrial Workers of the World**, organisation of revolutionary labour unions formed and operating chiefly in America. It was founded in 1905 at Chicago, and was the outcome of a meeting of Socialist and trade union leaders. The most prominent of its leaders were E. V. Debs, W. Haywood, W. Trautman, and the Rev. T. J. Hagerty. The activities of the I. W. W. were generally characterised by extreme violence, and in many states a campaign of attempted suppression was launched against them, ending in the deaths of Joe Hill in Utah and Little in Butte.

After the First World War Communism absorbed many of the I. W. W. supporters, and organised opposition from the various states caused a further decline. Special laws were passed rendering such forms of syndicalism illegal, and in 1918 more than a hundred leaders were imprisoned after a trial in Chicago. Moreover the restrictions imposed by later immigration laws reduced still further a membership hitherto largely maintained or augmented by the importation of unskilled labourers. In

Great Britain minor branches were formed in London, Liverpool, and Glasgow.

**Indy, Vincent d'** (1851-1931), Fr. composer, b. Paris. Member of a noble family of the Ardèche dist. in the Vivarais. His mother d. at his birth and he was brought up by his paternal grandmother, a good musician. At the age of 11 he was sent to Diémer for the pianoforte and Lavignac for theory, and later studied pianoforte under Marmontel. In 1870 he pub. his first composition and served in the defence of Paris against the Prussian Army. To please his family he studied law, but was determined to be a musician and went for advice to Franck, who offered to teach him. He also joined Colonne's orchestra as drummer to gain experience. Pasdeloup gave the first performance of one of his works, the overture to Schiller's *Piccolomini*, afterwards part of his *Wallenstein* trilogy. Next to Franck he admired Liszt, with whom he spent sev. months at Weimar in 1873, and Wagner, whose first *Ring* cycle he attended at Bayreuth in 1876. In 1894 he joined Charles Bordes, together with Guilmant, in founding the Schola Cantorum; he taught there until his death and had many pupils of the highest distinction. From 1912 he also directed the orchestral class at the Conservatoire.

His works include sev. operas (including *Fervant*), theatre and church music, symphonies, chamber music, songs, choral works. See studies by A. Sérieux, 1914, and L. Vallas, 1946-50; and A. Gabeau, *Auprès du Maître P. d'Indy*, 1938; N. Demuth, *Vincent d'Indy, Champion of Classicism*, 1951.

**Ine** (fl. 689-726), King of Wessex, succeeded Cadwalla. He forced compensation for the death of Cadwalla's brother from Kent in 694, conquered Gernat of W. Wales in 710, fought in Wilts against the Mercians, and in 725 crushed a revolt of the S. Saxons. He drew up a code of laws for Wessex, and, having abdicated in 726, retired to Rome where he d., the date not being known.

**Inebriates and Inebriate Acts.** The term inebriate is generally used to denote an habitual drunkard. Clinically, drunkenness (q.v.) is no more than a temporary cerebro-spinal disorder induced by the absorption of much alcoholic drink in a short space of time. It varies in form according to such circumstances as the amount of alcohol taken, the state of the stomach, the climatic conditions, and the reactions of the individual, and in its physical effect on the individual there may be many degrees of perversion of the senses, vertigo, and confusion of the intellect. But when long persisted in it may result in a diseased condition of the nervous system popularly termed inebriety. The symptoms are a craving for alcohol or an irresistible obsession with, and desire for, drink (dipsomania), producing chronic or periodical mental disorder of a depressive nature characterised by an undefined sadness, uneasiness, and apathy. The only chance of cure is to protect the subject against himself by enforcing total abstinence and



by suitable treatment with alkaline bromides or other sedatives, or by psychiatric treatment to resolve the inner conflict which is driving the person to drink. It is now generally recognised that drunkenness is invariably a symptom of anxiety; if the cause can be discovered the symptom will disappear. The Inebriates Acts allow of 2 classes of institutions: state and certified inebriate reformatories, and licensed retreats. A list of retreats for inebriety will be found in *Burdett's Hospitals and Charities*, 1930, where it is pointed out that any list of Inebriate Homes must necessarily be incomplete; only a few are licensed under the Inebriates Acts, and the majority of unlicensed homes are essentially of a private character with very few patients.

**Inebriates Acts.** The object of these Acts is to make provision for the compulsory detention and special treatment of criminal 'habitual drunkards' in state or certified inebriate reformatories, and provide for the voluntary detention of non-criminal 'habitual drunkards' in licensed retreats. In connection with the Inebriates Acts it may be noted that by the Eng. law drunkenness is no excuse for crime, though where intention is of the essence of the offence it may well amount to an extenuating circumstance; but drunkenness so far persisted in as to produce *delirium tremens*, or any other species of alcoholic insanity, renders a person incapable of committing crime in the eye of the law, though he may be confined as a criminal lunatic. (See also CRIMINAL LAW AND DRUNKENNESS.)

The Habitual Drunkards Act, 1879, enables a co. or bor. council to grant to any person or persons jointly a licence to keep a retreat. One at least of the persons to whom a licence is granted must reside in the retreat and be responsible for its management, and the medical attendant of the retreat must be a duly qualified medical man. 'Habitual drunkard' (a term now changed in the later Acts to 'inebriate') in this Act is defined as a person who, not being amenable to any jurisdiction in lunacy, is, notwithstanding, by reason of habitual intemperate drinking of intoxicants, at times dangerous to himself or herself, or to others, or incapable of managing himself or herself, and his or her affairs. The Inebriates Act, 1898, which initiated the estab. of these reformatories, gives power to the court, where a person is convicted on indictment for an offence punishable with imprisonment, but committed the crime while he was under the influence of drink, to order him to be detained in a state or certified inebriate reformatory provided: (1) the jury find, or the prisoner admits, that he is a habitual drunkard, and (2) the managers of the reformatory are willing to receive him. The commitment may be either in addition to or in substitution for any other sentence.

**Inequality**, term in astronomy. For the sake of convenience the average motion of a heavenly body (supposed to be made in a circle which has the mean distance of

that body from its primary for its radius) is the first object of calculation when the place of the body at some future time is to be predicted. All the alterations which are rendered necessary by the unequal motion of the planet are called inequalities. This term is specially applied to the mean motion of the moon. See MOON, *Lunar Theory*.

**Inert Gases**, formerly Noble or Rare, name given collectively to the chemical elements helium, neon, argon, krypton, xenon, and radon, which are characterised by their complete lack of chemical affinity. They form a separate group in the periodic system (q.v.), and have a valency of 0. Helium (q.v.) is obtained from certain minerals, and from natural gas (e.g. in the U.S.A. and Canada), and occurs in certain springs (e.g. at Bath). All the I. G. except radon occur in traces in the atmosphere, whence they are extracted. Helium and radon (q.v.) are spontaneously evolved from radium. Helium is used for filling airships, being light and non-inflammable, argon (q.v.) is used in gas-filled electric lamps, and neon (q.v.) electrical discharge tubes are used in illuminated electrical advertisement signs and in aeroplane beacons. All the I. G. were discovered by Sir Wm Ramsay (q.v.), though helium had previously been detected on the sun by Sir N. Lockyer. Certain organic compounds containing inert gas atoms held in the solid molecular lattice have been recently prepared by H. M. Powell of Oxford. They are known as clathrate compounds.

**Inertia.** Newton's first law, 'That every body perseveres in its state of rest, or of moving uniformly in a straight line, except in so far as it is compelled by impressed forces to change its state,' is sometimes called the law of I. It has always been easy to understand that force is required to set a body at rest in motion, and the property of I. was recognised from this standpoint by the ancients. It was not until the time of Galileo, however, that it was recognised that the same property held true of bodies in motion, and that it was understood that were it not for external causes, a body in motion would never of itself come to rest. The *Moment of I.* (I) of a body about a given axis of rotation is the sum of the products of the mass ( $m$ ) of each of the particles of the body and the square of their corresponding perpendicular distances ( $r$ ) from the axis.  $I = \Sigma(mr^2)$ . See MOMENTS.

**Inez de Castro**, see CASTRO, INEZ DE.  
**Infallibility**, freedom from all error in the teaching of faith and morals claimed by the Rom. Catholic Church. The question of the I. of the Church has been a subject of dispute for many cents., the dispute centring not in the question as to whether or no the Church is infallible, but in the question as to how and where its infallible utterances were made. The view of the I. of the Church held by the E. Orthodox Churches is retrospective, their teaching being that all the acts of the councils received in the E. as oecumenical are infallible. In the W. the question has

been one between the Gallican and Ultramontane parties (see GALLICANISM), and the latest decision of the Rom. Church on the subject was made at the Vatican Council of 1870. This council teaches 'that when the Rom. Pontiff speaks *ex cathedra*, that is, when he, using his office as pastor and teacher of all Christians, in virtue of his Apostolic office, defines a doctrine of faith and morals to be held by the whole Church, he, by the divine assistance promised to him in the person of blessed Peter, possesses that infallibility with which the Divine Redeemer was pleased to invest His Church in the definition of doctrine on faith or morals, and that, therefore, such definitions of the Rom. Pontiff are irreformable in their own nature and not because of the consent of the Church.' No authoritative decision has yet been made, however, to say exactly when the Pope is speaking *ex cathedra*, and it is disputed among Rom. Catholics as to whether certain utterances are to be regarded as infallible or not. It is quite agreed, however, that the I. does not extend to pronouncements on scientific and similar matters.

**Infamy**, formerly used in Eng. law to denote the loss of status consequent on conviction for an offence involving dishonesty or inhumanity, which loss entailed disqualification as a witness or juror. The prin. crimes which involved I. were treason, felony, all offences based upon fraud, piracy, subornation of perjury, and common-law cheating. But neither past nor present moral heinousness now disqualifies anyone as a witness, though the evidence of such a person may well be discredited by a jury; and conviction for crime does not disqualify as a juror unless, of course, the person convicted is actually in prison.

**Infant**, in law, means a person, male or female, under 21 years of age. The status of infancy in law is of especial importance in regard to contractual capacity and responsibility for crime. (As to the effect of infancy on the validity of contracts, see CONTRACTS.) An adult who has made a contract with an I. cannot make it void, though the I., generally speaking, can. By the old law a male I. at 14 could contract a valid marriage with a female I. at 12. But since Lord Buckmaster's Act, 1929, both parties must have attained the age of 16 before a valid marriage can be contracted. Where the consent of parents or guardians is required a pub. of banns is void if any one parent or guardian publicly dissents. A licence cannot be obtained by an I. without the necessary consent, which must be that of the father if living, otherwise the mother, or if both are dead the guardian(s); if there is none, of some person appointed by the court. For an illegitimate child the mother's consent is required. A marriage, however, is valid without consent, although the parties may incur penalties, e.g. for false swearing. An I. husband may be sued for his wife's debts contracted before marriage, but will not be liable to a greater extent than the

from his wife. — have acquired through or from his wife. For the responsibility of I.s for crimes see CRIMINAL LAW.

**Infant Feeding**, see CHILDS.

**Infant Schools** in England to-day cater for children between the ages of 5 and 7 or 8: they are part of the first stage of education as organised under the 1944 Act—the primary stage. They are preceded by a number of nursery schools (q.v.) which are not compulsory, and are followed by junior schools—the last stage of primary education. The Swiss reformer, Jean Frederic Oberlin (q.v., 1740–1826), was the founder in 1769 of I. S. on the Continent. Robert Owen (q.v., 1771–1854) opened a school in Scotland at New Lanark on the Clyde in 1816 for children of working people. The headmaster, James Buchanan, was put in charge of an infant school at Westminster (1818), and on his advice Samuel Wilderspin was given the headship of a school in Spitalfields in 1820. When the London Infant School Society was formed in 1824 Wilderspin superintended the opening of numerous schools. David Stow (1793–1864) was instrumental in forming the Glasgow Infant School Society in 1826, which performed pioneer work in Scotland. The interests of the people concerned with these early movements were with children under 6 and with their moral and physical development. Their chief objective was to save young children from exploitation during the Industrial Revolution. Playgrounds were designed to promote healthy and hardy youngsters. The monitorial schools inspired by Andrew Bell and Joseph Lancaster (qq.v.) were for children of 6 and over and were intended to teach them the 3 Rs. Of the other schools—the dame, the parochial, and the Sunday schools—only the dame schools concerned themselves with children under 6 years of age. The development of a national system of I. S. dates from 1870. The age fixed for obligatory attendance was 5; local authorities were given authority to provide education for children between the ages of 5 and 13; children could, however, be accepted at 3 years. In 1871 a committee under the chairmanship of T. H. Huxley suggested that I. S. should be for children up to 7, to be followed by junior schools 7–10, with senior schools for children over 10. I. S. were to be mixed schools and the teachers should be women. The recommendations were accepted by authorities like London and Croydon and quickly became incorporated in the primary school system throughout the country. The terminology is still widely used in the mid 20th cent. After 1905, on the basis of a report on I. S., there was a growing tendency to separate nursery schools for children up to 5 from I. S. This is now universally accepted as desirable.

In the 19th cent. the influence on I. S. of Friedrich Wilhelm August Froebel (q.v., 1782–1852) was very great. The first kindergarten (q.v.) was opened at Hampstead in 1853. Physical exercises and games, story-telling, and Froebel

'gifts' were used in the education of children. Dr Maria Montessori's (q.v.) influence was also felt during the early part of the 20th cent. Her revolutionary ideas on child freedom and individual development have been widely acclaimed. Her methods, with their hint of formality, have been less generally accepted by teachers who, in England, have had a large measure of freedom in the classroom. Interest was also aroused in the writings of the Amer. philosopher and educator, John Dewey, particularly by Prof. J. J. Findlay of Manchester. At about the same time Margaret McMillan (q.v.) opened her open-air nursery school in the slum area of Deptford. In open-air shelters children were taught the elementary facts of health and cleanliness in addition to being given simple lessons. These traditions have helped to create the atmosphere which exists in many I. S. throughout the country to-day. Activity methods are widely used, group work is encouraged, learning is no longer by rote, discipline is permissive rather than authoritarian, and the full development of the child is regarded as the main aim of education. These improvements have been brought about not only by the advocacy of pioneers but through the solid achievements in the colleges where I. S. teachers are trained. See also CHILD STUDY; EDUCATION; KINDERGARTEN; NURSERY SCHOOLS. See D. Salmon and W. Hinshaw, *Infant Schools, their History and Theory*, 1904; P. B. Ballard, *Practical Infant Teacher*, 1929; J. W. Adamson, *English Education, 1769-1902*, 1930; Margaret McMillan, *The Nursery School*, 1930; Margaret Lowenfeld, *Play in Childhood*, 1935; Maria Montessori, *The Secret of Childhood*, 1936; E. R. Boyce, *Play in the Infant School*, 1938, and *The First Year in School*, 1953; P. E. Cusden, *The English Nursery School*, 1942; D. E. M. Gardner, *Education under Eight*, 1949; Constance Sturmer (ed.), *Activity Methods for Children under Eight*, 1950.

Infant Welfare, see MATERNITY AND CHILD WELFARE.

Infanta, Sp. and Portuguese title formerly given to the princesses of the royal family, the eldest princess being also called 'la princesa.' It corresponds to 'infante,' the title formerly given to the princes of the royal houses.

Infanticide. The practice of I. was common to anc't nations, was prevalent in India (especially among the high-caste families of Rajputana) and in China down to recent times, and is probably widely practised among aboriginal peoples at the present day. In the customs of savage races, I. is closely associated with exogamy, or the custom of marrying outside the tribal community. Female children especially suffered, for among savage tribes they were a source of weakness and danger, since they were useless as fighting units. With nations or peoples of a later date, especially the Hindus, the motives for I. were occasionally religious or superstitious, but far more often merely prudential. In India this practice—only too

glaringly evidenced by the extraordinary disproportion of the male to the female pop., for again it was the females that chiefly suffered—was virtually stamped out by Jonathan Duncan and Maj. Walker, who initiated measures which culminated in Acts authorising dists. whose percentage of female children fell below a certain average to be placed under police supervision. No less terrible in its incidence was the custom in China, and although mitigated by the influence of Christian missionaries, there is reason to believe that it is still practised. As to classical times, it is curious that the *jus vitae necisque* (right of life and death) over his children which the Rom. father had till late in the list. of Rom. jurisprudence, and the analogous right given to the Grk head of a family, should have prevailed as late as it did in societies otherwise so highly endowed intellectually. Among the Spartans, too, there were laws positively enjoining the exposure of deformed children, as, indeed, at an earlier date among the Romans. The combined effect of the legislation of Constantine, Valens, and Valentinian, at a period strongly under the influence of the Christian fathers, put an end to the practice of exposure and took away the paternal right of life and death. In England intentional or other inexcusable I. is either murder or manslaughter, according to the circumstances. To amount to murder it must be proved that the infant was in the legal sense a human being, or, to adopt Coko's phrase, 'a reasonable creature and being.' This means that the child must have completely proceeded in a living state from the body of its mother, whether it has breathed or not, and whether the umbilical cord, or navel, is severed or not. Therefore killing a child in the womb is not murder, although it may well be punishable under the Acts relating to abortion. But if a child die, after being born alive, as a result of drugs or wounds received while in the womb, such I. is murder. (See also ABORTION; BIRTH, CONCEALMENT OF; ILLEGITIMACY.)

The Scots criminal law is not dissimilar to the English in this respect. All over Europe, and in some oriental countries, through the exertions and pecuniary assistance of Europeans, a great deal has been done to prevent I. by the institution of foundling hospitals. See J. Peggs, *Infanticide's Cry to Britain*, 1844, and A. M. Carr-Saunders, *The Population Problem*, 1922.

Infantile Diplegia, see under BIRTH PALSY.

Infantile Paralysis, inflammation of the motor nerve cells of the brain and spinal cord. I. P. is the popular name for what is known medically as acute anterior poliomyelitis, and in common parlance 'polio.' It is characterised by fever, malaise, pains in the body, and in some cases paralysis of varying extent. Broadly speaking, cases of I. P. can be divided into non-paralytic and paralytic, and in any epidemic the non-paralytic cases considerably outnumber the more severe

paralytic type. Although known for a long time, I. P. has assumed epidemic proportions only since the beginning of the cent. Following outbreaks in Scandinavia, New York suffered epidemics of 2000 and 9000 cases in 1907 and 1916 respectively. In the Brit. Isles epidemics of I. P. have occurred with greater frequency since the war, and in each of the years 1947, 1950, 1953, and 1955 between 5000 and 8000 cases were notified. The proportion of severe cases, although not constant for each epidemic, has also tended to increase. At one time almost solely a disease of children, the age incidence has shifted to include the higher age groups and young adults are commonly affected. Even a case in a person aged 72 has been reported. Although sporadic outbreaks and odd cases may occur at any time of the year, I. P. is most evident in the hotter months of July, Aug., and Sept. By Oct. notifications begin to decline. One of the smallest known viruses is the responsible infecting agent. There are 3 main types of the virus, and within these types are various recognised strains, any of which may be the prin. cause of a particular epidemic. In this way I. P. is not unlike influenza (q.v.). As a rule one attack grants immunity but second attacks in the same person have been recorded and have probably been due to a different strain of virus against which the first attack had not provided immunity. The mode of infection is either by airborne droplets, in which case the point of entry into the host is the throat, or from contaminated food, when the host absorbs the virus in the alimentary canal. Within a week or more of the start of their illness patients excrete the virus in the faeces and it is from this source that contamination of food may occur. It is possible for healthy persons showing no signs of illness to be carriers of the poliomyelitis virus and obviously these people, and also those with clinically very mild attacks of the disease are hidden sources of infection to others which it is difficult to guard against. The symptoms of I. P. in the initial phase of an attack are sore throat, muscular pains, headache, and mild pyrexia, and are indistinguishable from the early stages of many other infections. Symptoms such as these do not arouse suspicion except during the course of an epidemic when patient and doctor are alerted. The majority of cases do not progress beyond this stage and recovery is fairly rapid. The second phase of the illness, which often follows after a temporary improvement of symptoms for a day or two, represents the attack by the virus on the central nervous system. Headache is usually severe and there is increasing muscular pain, particularly in the back. The extent and location of the ensuing paralysis depends entirely on the sites of inflammation in the nervous system. In the severe cerebral type of I. P. some of the major nerve centres of the brain may be affected, particularly the respiratory centre, or the cranial nerve which supplies

the pharynx and larynx. In these cases there is a major crisis in the respiratory mechanism. In the spinal type of I. P. the leg muscles are paralysed more frequently than the arms, and less frequently the abdominal, diaphragmatic, and intercostal muscles. Paralysis of these latter groups or muscles causes difficulty in breathing and it is here that an artificial respirator (the 'iron lung') is such a valuable aid. Treatment of I. P. consists, first, in prevention. Cleanliness in personal habits and scrupulous care in washing the hands after using the lavatory are most important. Meals should not be prepared with dirty hands, and food should be kept covered and protected from flies. Measures for the isolation of contacts of known cases will be advised by the health authority. It is well known that fatigue increases the severity of the infection and any child who develops feverish symptoms during the summer months should be put to bed as a precaution. Nor should children be allowed to exert themselves excessively when I. P. is in epidemic form. Operations for the removal of tonsils and adenoids are usually postponed during epidemic periods unless there is urgent need for surgery. It has been observed that children who contract I. P. shortly after being immunised against other infections are apt to develop paralysis in the arm which was the site of the injection. For this reason prophylactic inoculations against diphtheria and whooping cough are often withheld during the summer months. Attempts to prepare a prophylactic vaccine against I. P. were unsuccessful for a long time, the main difficulty being to find a medium in which to grow the virus which would not render the vaccine prepared from it unsuitable for injection into human beings. In 1948, however, the position was altered by the discovery of J. F. Enders, T. F. Weller, and F. L. Robbins in America that the poliomyelitis virus could be grown in tissue culture and in a medium virtually free from toxic properties. Following this up Dr Joseph Salk prepared a formalin-inactivated vaccine from viruses grown in monkey kidneys. This Salk vaccine, which contained all 3 types of virus, was given a large-scale trial in the U.S.A., Canada, and Finland in 1954. The result showed that it conferred a considerable degree of protection against paralytic poliomyelitis in those children who were given the vaccine compared with those who were not given it. The Salk vaccine was released in the U.S.A. for general use early in 1955, and some 10 million children were injected. Unfortunately some children who had received vaccine from one particular source of manuf. developed the disease in paralytic form and until the reason for this was explained the vaccination campaign was halted. Investigation, however, proved that the accident was due to an isolated instance of faulty technique in preparing the vaccine, and that the viruses in the offending batch of vaccine had not been entirely inactivated

(killed) by the formalin. As soon as this fact was estab. the ban was lifted and immunisation proceeded. Meanwhile a vaccine had been prepared in this country on similar lines to that of the Salk, but containing slightly different virus strains. This vaccine was released in the spring of 1956 in sufficient quantities to immunise about 500,000 children between the ages of 3 and 9 under the provisions of the National Health Service. It is not yet possible to assess the duration of the protection which the Brit. or the original Salk vaccine will afford. This and other information, such as the optimum age at which vaccination should be performed, will emerge only from observation and from continued use of the vaccine. It is certain, however, that the new vaccine is a most valuable advance in the battle to prevent this potentially crippling and often mortal complaint. There is no specific drug treatment for I. P. and chemotherapy, except for secondary bacterial infections (such as pneumonia in cases of respiratory paralysis), is unavailing. The paralysed muscles must be treated in the appropriate manner by splinting of the affected limb and physiotherapy. The less the degree of paralysis and the earlier the signs of voluntary movement return, the greater the prospects of recovery, which may be complete. Muscles that show no signs of response after 6 months as a rule do not recover, and mechanical supports must then be provided to aid the patient toward the greatest degree of normality of movement that may be possible. The 'Drinker' respirator (the 'iron lung') and other mechanical aids to respiration have proved invaluable in the treatment of patients with respiratory paralysis.

**Infantilism**, term applied to those conditions when childish characteristics persist into later life. Where I. is myxoedematous, it is due to atrophy or inactivity of the thyroid gland, and is then identical with cretinism. The term 'infantilism' includes many other groups of cases which are with difficulty reduced to a type. The special characteristic is absence or modification of some of the secondary sexual features; e.g. hair does not grow in the arm-pit or the pubic region, and the voice may retain its childish pitch. The individual may be fully adult in other respects, but usually shows malnutrition, either generally, or in some special direction. The cause is some constitutional derangement of metabolism, and the condition generally illustrates the tendency under such circumstance towards modification of the secondary sexual characteristics. Myxoedematous I., or cretinism, is due to the disturbance of a specific secretion, that of the thyroid gland. If the gland is absent at birth, or is congenitally diseased, the sexual characters remain undeveloped during life, and the condition may not be observed until the time of puberty. The face retains the chubby appearance of childhood, the voice remains of childish pitch, the second dentition may be absent or abnormal, the

genitals are rudimentary, and the mental outlook and intellectual activity remain those of a child. When the thyroid gland is removed in adults, the resulting condition seems that of a partial reversion to childhood; the mental activities become slower and less complex, the patient is childishly irritable, and there is a marked loss of hair. The treatment of myxoedema, whether occurring in adults, or as a congenital condition, includes administration of extract of the thyroid gland, which has been found of particular efficacy in many cases. I. may also be due to nervous or emotional hold-ups, which can be resolved by psycho-therapy.

**Infantry**, name given collectively to a body of troops who fight on foot and who are normally armed only with hand weapons. The Gk, Rom., and Gothic armies all had their supplies of I., but the I. in most cases was simply that part of the fighting force which could not be mounted. The mounted men were the chosen warriors, the I. the rank and file. The armies of Greece and Rome were usually composed of more I. than anything else, and the I. fought in close serried masses, and gave by their closeness an added strength and weight to their tactics. The period between the fall of the Rom. empire and the end of the 11th cent. was that of the feudal armies, when battles were decided not by I. but by cavalry charges, and the I. of the defeated side were indiscriminately slaughtered. But a change was brought about first by the introduction of the archer, and secondly by the introduction of I. tactics which were capable of overthrowing the feudal cavalry. The battle of Falkirk (1298), between Wallace and Edward I., although it was not a victory for the I., nevertheless illustrates very strongly the new methods. The 'schiltrons' of Wallace, i.e. the circles of spearmen, did much to hold the cavalry at bay. The best example, however, was Courtrai (1302), where the burghers of Bruges overthrew the feudal army of Count Robert of Artois. Crécy was essentially a victory for the new I. tactics. The age of the feudal army was declining; the combination of the resistance of the I. and the shooting of the archers seemed about to give it its death-blow. But the lessons which I. had taught during the Hundred Years War were speedily forgotten, and cavalry again asserted its superiority. From this time onwards, however, I. was a definite part of the army. The introduction of firearms naturally enhanced this result.

The period from the opening of the 16th cent. proved that the archer was no longer of any great value, and for a time the I. were armed in Swiss fashion with long pikes. Finally, a combination of I. armed with pikes and I. armed with guns was adopted, and as these tactics commanded the enemy both at a distance and at close quarters for a time the problems of warfare seemed solved. The 16th cent. and the early 17th was the age of the mercenary soldier. Against untrained rebels this type of soldier was invincible,

and nowhere do we find a better example of this than in the Sp. wars in the Netherlands. The Thirty Years War had great effects on the tactics of the European I. The methods adopted by Gustavus Adolphus and the Swedes during that war were eagerly imitated by the rest of Europe. Especially noticeable is it that the arquebus used by the Swedes had been lightened and could now be fired without using a rest. At the end of the 17th cent. we find that the old pike tactics of the I. pass away altogether. The bayonet fixed to the muzzle of the gun took the place of the pike. Fire tactics were adopted. The enemy were riddled with fire from the guns at as short a distance as possible, and then, when the opposing ranks had been disorganised, the bayonet charge completed the attack.

the Russo-Jap. war; but the changes did not radically alter the principle, and the attack in extended order still remained the basis of I. tactics.

*Recruiting and discipline.* The head of the 'other ranks' is the regimental sergeant-major (warrant officer, class 1); the 4 company sergeant-majors are warrant officers, class 2. Both classes hold warrants from the Secretary of State for War. In the Brit. Army each regiment (except rifle regiments) carries 2 colours; the first is the 'Queen's' and the second the 'Regimental.' Before 1881 each regiment had a number. One battalion was always on foreign service and the other at home. Recruits were partly trained at regimental depots situated in the county or area to which the regiment belonged, as indicated by its title. They were then



ENGLISH INFANTRY MEETING THE NORMAN CAVALRY

In this panel from the Bayeux Tapestry the infantry are seen with javelin, axe, and bow.

From the year 1798 can be dated the beginning of modern I. tactics. The change was due very largely to the methods of Napoleon, who, having poured an overwhelming artillery fire into the masses of the enemy, brought his I. up to complete the attack. It was a combination of the 2 methods of artillery fire and I. charges. The Brit. I. methods of the Peninsular war were somewhat different. They were modelled on the old platoon-fire tactics of Frederick the Great, but they combined mobility and an ability to use cover with the massed strength of the former Ger. I. The tactics consisted in reserving fire until the enemy were within easy striking distance, and then pouring in a murderous volley and following this up with a bayonet charge. The next great epoch-making war, as far as the I. were concerned, was the Franco-Prussian war of 1870. The massed firing tactics were almost entirely relegated to the artillery, and the I., in extended order and taking advantage of every inch of cover, slowly crept to the attack. These methods subsequently underwent some change, especially as a result of the S. African war, and later of

passed on to the Home Battalion, which completed their training and, when required, passed trained men on to the battalion on foreign service to keep it up to strength. The Foot Guards are Household troops, but their organisation and training correspond in their main features to the I. of the Line. They provide guards over royal palaces, etc., and furnish royal escorts on ceremonial occasions. The standard of recruit is high and it would appear to be generally conceded that the Brit. Foot Guards are the finest I. in the world.

Changes introduced in the organisation of the I. in 1946 to meet the necessities of contemporary warfare altered the Cardwell (q.v.) system almost out of recognition. Under the test of battle experience the Cardwell system of linked battalions twice broke down. It was found, for example, that 1 brigade of a div. on an overseas front might suffer such heavy casualties that the reinforcements for its battalions on the lines of communication were inadequate to reform its ranks, while other brigades might have suffered no serious losses, and in such cases these battalions obviously had to be reinforced from other regiments.

To-day the Cardwell principle has been found to be too rigid even in time of peace. The foundation of reinforcement under the Cardwell system was that there were an equal number of battalions at home and abroad; but after the Second World War it was clear that fewer I. battalions would be required owing to the development of airborne and armoured divs., and also because the army in India would be heavily reduced with the coming of Indian Independence in 1947. Possibly the most convenient reorganisation for reinforcement would have been the formation of a Corps of I., in which postings could be carried out without regard to regimental ties. But this suggestion was resisted and compromise reached (1946) whereby a system of grouping was effected by the formation of 15 groups of regiments with territorial or traditional connections. Every battalion in each of these self-contained corps retains its separate identity. In order to reduce the total number of battalions it was decided to relegate some to temporary 'suspended animation' without officers or men on their strength, but ready to be recreated in emergency and in any case at the end of a stated period. During the course of the next few years this policy was several times reviewed, but it was not until 1956 that the decision was finally made that only one regular battalion in each regiment should be retained.

*Tactical organisation and equipment of British infantry.* The number of men which can be controlled in battle by one commander is strictly limited. The basis of I. organisation is accordingly the section, which is the largest group of men which can be personally controlled by its leader throughout the battle. Sections are grouped into platoons, platoons into companies, companies into battalions, and battalions into I. brigades which are the largest units which consist solely of I. This system, known as 'the chain of command', ensures orderly manoeuvres by any number of units in accordance with a single plan, and enables the section commander to assist in giving practical effect to the plans and instructions of the commander-in-chief. An I. battalion consists of H.Q. company, support company, and 4 'rifle' (in fact, light machine-gun) companies. It is commanded by a lieutenant-colonel, with a major as second-in-command. The H.Q. company is commanded by a major or a captain. The platoon is the smallest I. unit which can be divided into interdependent bodies each capable of fire and manoeuvre. It is thus the unit on which all I. tactics are based. The section is the fire unit. Companies of each battalion are designated by serial letters or numbers; platoons are numbered serially throughout each battalion.

After 1936 all I. battalions of the Brit. Army gradually became either 'machine-gun battalions' or 'rifle battalions,' so as to provide I. brigades consisting of 3 rifle battalions and 1 machine-gun battalion each.

During the First World War open warfare had soon become impossible, and the employment of cavalry was very much curtailed on the W. Front; and not only was the cavalry converted into I., but the proportion of I. to other arms greatly increased. Before the introduction of tanks a battle was usually a contest between opposing I. supported by artillery. As artillery could not advance to hold positions, offensive action fell entirely to I.

The modern Brit. I. is equipped with rifles, bayonets, grenades, Vickers machine-guns, Bren light machine-guns, mortars, machine carbines, anti-tank guns, and anti-tank projectors. Anti-gas equipment is also carried. The multiplicity of weapons and methods calls for a better type of recruit than formerly if he is to assimilate the knowledge for their efficient application. Consequently educational training now forms an integral part of the Brit. soldier's life. More attention is also given in the modern army to physical and recreational training so as to ensure fitness for service under more strenuous conditions. The kit carried by the infantryman has been increased in order to provide him with the means of defence (1) against shrapnel by the provision of a steel helmet and (2) against gas by the provision of a gas respirator. These additions hinder mobility to a certain extent, and I. are now, if required to operate at a distance, transported either by road or by air. This fact has given rise to 2 specialised types of I. battalion—the motor battalion which forms an integral part of armoured formations, and the airborne or parachute battalion transported either by glider or by troop-carrying aircraft. With these 2 exceptions, Brit. I. battalions tend to be of a more uniform type than those of most armies since there is no special estab. for rifle (*Jaeger, Chasseur*) or mt (*Gebirgsjaeger, Chasseur Alpin*) units.

A further characteristic of Brit. tactical I. organisation is that whereas the regiment of most armies consists of 2 to 4 purely 'rifle' battalions together with I. gun, anti-tank, and sometimes engineer companies, which all form an integral part of the regiment, the Brit. brigade is essentially a team of 3 identical battalions. In action this can form a brigade group (U.S. Combat Team) together with artillery, engineers, anti-tank guns, etc., allocated from other arms of the div., but in addition each battalion disposes, in its support company, of its own heavy weapons handled by carrier, mortar, anti-tank, anti-aircraft, and machine-gun platoons. For details of recent regimental amalgamations, see REGIMENT.

*Infection.* communication of disease by micro-organisms. The essential conditions for I. are that there should be a source or reservoir of micro-organisms, a susceptible host to receive them, and a vehicle or vector for transferring them from reservoir to host. The reservoir, as a rule, is another person who is either suffering from the infectious disease or is a carrier of the

micro-organisms which cause it; or in some cases the reservoir may be one of the animal species, as in the case, for example, of bovine tuberculosis (q.v.), anthrax (q.v.), psittacosis (q.v.), and undulant fever. Micro-organisms may be conveyed from reservoir to host in an almost unlimited number of ways. Minute droplets of micro-organism-laden moisture expelled from the mouth, throat, and respiratory passages of an infected person by coughing, sneezing, talking, or ordinary expiration are the vectors of I. in many diseases. Such particles may remain suspended in the atmosphere for some hours and are capable of circulating throughout the confines of an enclosed space. The droplets evaporate after settling, whereupon their content of micro-organisms attaches itself to dust particles. Infected sputum behaves in a similar manner. Foods, milk, and water are vectors of I. in many diseases, well-known examples being typhoid fever (q.v.), and the dysenteries (q.v.). The 'fomites,' that is clothing, bedding, books, and any articles of everyday use, may harbour and transmit micro-organisms. There are also the insect vectors, mosquitoes, fleas, lice, and flies, which are responsible for the communication of many infectious diseases, particularly those common in tropical countries. The communication of infectious disease by direct contact between host and reservoir is usually known as contagion (q.v.). The prevention of I. is the concern of the epidemiologist. See BACTERIA; EPIDEMIOLOGY; HYGIENE; and under the headings for the various infectious diseases.

**Infetment, or Sasine,** in Scots law means both the act or (prior to 1845) symbolical ceremony of giving to another the possession of heritable land and the writ or instrument of sasine in which such act or ceremony is expressed. I. being a feudal act, and the Crown being the lord paramount of all Scottish feus or fiefs, an I. can only be under a grant from the Crown. This is interpreted in practice to mean that to constitute a valid I. the transferee must show a feudal chain of title going back ultimately to the Crown. But there may be real rights without I. These exceptions include leases, servitudes (analogous to rights of way or other rights over the land of another), ual lands situate in the Orkneys and Shetlands, Crown lands, and churches and glebe of the Church of Scotland. I. is now obtained by recording the deed transferring the land in the register of sasines. It has long been settled that a purchaser, or a lender on heritable security, is entitled to rely on the registers of sasines, and is not affected by any conveyance or encumbrance which is not recorded on the register.

**Inferior Courts** comprise in England all those that are below the dignity of the High Court of Justice, and whose decisions are subject to review by the High Court. The prin. I. C. exercising civil jurisdiction are the co. courts, from the decisions in which an appeal lies to the High Court

where the amount involved exceeds £20. Where the plaintiff in the High Court has no visible means of paying the defendant's costs, the defendant may, on swearing an affidavit to that effect, get an order remitting the case for trial in the co. court. There are also certain local courts exercising a considerable civil jurisdiction, the most important being the Chancery Court of the County Palatine of Lancaster, the powers of which, within its local limits, are similar to those of the Chancery Div. of the High Court; the Mayor's Court of London, the Court of Passage of Liverpool, and the Salford Hundred Court, all exercising within their local limits a full common law jurisdiction. The courts of the univs. of Oxford and Cambridge have by auct. charters a jurisdiction in actions to which any member or servant of the univ. is a party, at least where the cause of action arose within the liberties of the univ. Other I. C. called the Eccles. Courts (q.v.) give redress in actions of an eccles. or spiritual nature. As great an authority as Stephen states that their jurisdiction rests entirely on the tolerance of the municipal law. The criminal courts of inferior degree are: (1) the general co. sessions or quarter sessions (see COUNTRY SESSIONS), which is a court of first instance and of appeal against summary convictions by petty sessional magistrates. An indictment (q.v.) may be removed to the Queen's Bench Div. from quarter sessions by order of *certiorari* (q.v.) in certain cases, such as where an impartial trial cannot be had in the I. C., or some more than ordinarily difficult point of law is involved; (2) bor. quarter sessions, with judicial functions identical with those of the co. quarter sessions, and presided over by a 'recorder' who becomes a bor. magistrate *virtute officii*; (3) petty sessional courts consisting of at least 2 justices or a police or stipendiary magistrate, or the lord mayor or an alderman in the City of London. These courts have a limited jurisdiction to try indictable offences under the Summary Jurisdiction Acts. The Queen's Bench Div. can grant a *certiorari* to transfer a case to the High Court where the magistrates exceed their jurisdiction or there is some manifest informality, and on a *special case* stated by the justices can decide any point of law submitted for the decision of the High Court. Again the High Court may issue an order of prohibition to stop proceedings where the magistrates have no jurisdiction, and generally speaking any I. Court which attempts to exceed the limits of its jurisdiction may be prevented by such an order, and conversely an order of *mandamus* may be issued to compel any I. Court to exercise its jurisdiction, at all events in cases where relief is sought in respect of the infringement of some public right or duty.

**Inferiority Complex,** in psycho-analysis an emotional idea of the self or ego, whose unconscious activity gives the sufferer an affective attitude of inferiority towards himself. It has its origin in a wounded narcissism or self-love, and may lead to a



neurosis which causes the person to doubt his capacity.

**Infidel**, term popularly used to describe a person who rejects Christianity as a divine revelation. The word does not properly apply to heathens or heretics. Muslims employ a similar term ('*gilaour*,' '*kafir*,' etc.) to describe Christians.

**Infinite** connotes chiefly the attributes of the Deity or Absolute Being, but is also used negatively to describe the boundlessness and immeasurableness of space, time, or the universe. The use of the word *apeiron* (best trans. as 'unlimited' or 'indeterminate') in the Milesian school of Gk philosophers, e.g. by Anaximander, marks, however crudely, the beginning of an attempt to give a scientific statement of the universe. It is often assumed by modern thinkers that the Gk philosophers, and even such modern philosophers as Hobbes and Hegel, confounded the idea of the 'immeasurable' with that of the 'unbounded,' because, according to the methods of elliptic non-Euclidean geometry, it is at least plausible to argue that space is as 'measurable' as the surface of any unbounded spherical body, or the necessarily unbounded circumference of a vast circle; and, again, because geometry can conceive of an immeasurable and unbounded straight line becoming bounded by merely cutting off a small part and leaving the line bounded by the 2 terminals so formed. Whether these methods, which attempt to apply the rigid exactness of mathematical science to philosophical theories of space, are valid depends on the extent to which they may be said themselves to postulate such arbitrary assumptions as that space is in any way analogous to a sphere or that an I. line becomes finite by imagining a point of section.

**Infinite and Infinity** are perhaps the most difficult conceptions mathematicians have to make. Infinity is defined as being that quantity which is greater than every assignable quantity, and it is denoted by the sign  $\infty$ . It is most easily conceived as a limit, e.g. as the quantities  $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \dots$  get smaller and smaller, so  $n$  gets larger and larger, and the limit to which  $n$  tends, as the infinitesimal  $\frac{1}{n}$  tends to zero, is  $\infty$ . In higher geometry parallel lines are those which meet at infinity, and the asymptotes of an hyperbola are the tangents to the curve at points on it infinitely distant.

**Infinitesimal**, in mathematics, is defined as a quantity smaller than every assignable quantity. The idea of an I. is obtained by supposing a quantity to decrease indefinitely but yet never actually to become zero. In calculations in general an I. may be neglected in comparison with ordinary magnitudes. If  $\epsilon$  is an I.,  $\epsilon^2$  is an I. of the second order, and  $\epsilon^3$  similarly may be neglected in comparison with  $\epsilon$ . A practical conception is obtained in astronomical problems. The distance of the stars from the earth is very great, and

the radius of the earth so small in comparison that it may be regarded as an I. and neglected in the calculations, i.e. it is immaterial whether the star's distance is reckoned to the centre or any part of the surface of the earth. This would not be true, however, in the case of comparatively close celestial bodies—the moon, for example. The ratio of two indefinitely small increments, or I.s of two dependent variables expressed as  $\frac{dy}{dx}$  forms the basis of the differential calculus (q.v.).

**Infirmity**, see HOSPITALS.

**Inflammation**, term used to denote certain tissue-changes which are accompanied by the symptoms of redness, swelling, pain, and heat-sensations. I. is primarily a protective process by which the body attempts to get rid of some irritating or injurious substance, and is a feature of almost every disease and injury. Where the tissues are injured and no germs are present, the process of repair goes on without undue swelling or pain, while any invasion of bacteria is attended by the characteristic symptoms of I., sometimes followed by suppuration or the formation of abscesses. The process of I. begins with the presence of an excess of blood, this gives the red appearance and also accounts for the sensation of heat. The blood vessels become dilated and there is considerable effusion of plasma and white corpuscles through the walls of the vessels. The continuance of the irritating stimuli causes more and more blood to flow to the part with still great effusion of plasma and white corpuscles, so that the part swells, the feeling of heat becomes more intense, and the pain takes on a throbbing character owing to the communication of the motion of the heart to the dilated arteries. The white corpuscles are busy destroying germs, dead tissue is being detached, and new tissue built up; the products of I. are carried away in the blood, or discharged from abscesses, etc. The treatment of I. is the treatment of the condition causing it. When it is due to bacterial infection the appropriate antibiotic or sulphonamide is often the treatment of choice.

**Inflation and Deflation**. In economics inflation strictly denotes an excessive supply of money relatively to the amount of goods and services; deflation denotes the opposite. Thus inflation means that the demand for goods and services exceeds their supply at current prices. Commonly, I. and D. connote abnormal expansions and contractions of money associated with marked effects on the price level. Slight inflation tends to stimulate trade, since if people expect prices to rise to-morrow they hasten to buy to-day. Deflation works the other way, since if lower prices are expected buyers will wait. A fall of particular prices does not mean deflation: it may be due to increased efficiency. Similarly inflation is possible without rising prices.

**Inflation**, or rather the policy that makes it inevitable, has great attractions for the statesman. It is a thankless task

to refuse claims, eminently reasonable in themselves, for more wages, more salary, more compensation, etc., and a great temptation to follow, in greater or lesser degree, the line of least resistance. But if 'the money is not there' concessions mean its undue creation, and the 'slippery slope' of inflation. While slight inflation may be innocuous if not advantageous, high inflation means total loss of faith in the currency, ruin to those dependent on savings, and general dislocation of business with wages and prices chasing one another in a 'vicious spiral'.

The terms I. and D. came into use in the latter half of the 19th cent. and into general use during the First World War. The paper 'greenbacks' of the Amer. Civil war represented a considerable inflation, but the First World War and its aftermath produced inflations of quite a different order. Russia, Austria, and Germany all experienced high inflation. In Germany in 1923 a new mark, the Rentenmark, was introduced, exchanging for 1 billion old marks. In modern war nations find it increasingly difficult, not to say impossible, to pay their way by taxation and savings, and, to fill the gap, resort to borrowing from the banks (so causing the creation of bank-money) as well as to printing bank-notes. Even so Germany emerged from the First World War with relatively moderate inflation: it was in the special circumstances of the post-war years that the mark became practically worthless.

The following figures of percentage increases in wholesale prices give an indication, by no means precise, of the inflation which occurred in certain countries over a 10-year period (1937-47) covering the Second World War:

	Per cent
U.S.A. . . . .	76
U.K. . . . .	77
Switzerland . . . . .	101
France (1938-47) . . . . .	889
Japan . . . . .	3,761
Italy . . . . .	5,418
Poland (Cost of living: War-saw only) . . . . .	14,953
China . . . . .	2,631,000

Beside paper inflations on the Ger. or even the Chinese model, metal inflations seem of small account. Nevertheless the Sp. conquest of America brought large quantities of the precious metals to Europe and fed the inflation that helped trade in Shakespeare's day, besides helping to diminish the value of royal revenues and send the Eng. monarchy to Parliament for more and more money. Again, the discoveries of gold in California and Australia in the middle of the last cent. inflated the money-basis of the gold standard countries. Later, improvement in mining technique had a similar effect. On the other hand the demand for monetary gold may itself cause a gold deflation, as occurred notably in the latter part of the 19th cent. and again between the wars. Superimposed on such basic movements

the 'trade cycle' brought its own alternation of I. and D., boom and slump. While the inflations of the trade cycle were in no way comparable to the extreme inflations of modern times, the loss, unemployment, and distress caused by the deflationary phase induced a search for less drastic ways of adjustment. After the Second World War hopes were centred in the International Monetary Fund. See L. von Mises, *The Theory of Money and Credit*, 1934; R. G. Hawtrey, *The Gold Standard in Theory and Practice*, 1947; G. Crowther, *Outline of Money*, 1948; F. Benham, *Economics*, 1955; First Report of (Cohen) Council on Prices, Productivity, and Incomes, 1958. See also BANKS AND BANKING; CURRENCY; PAPER MONEY.

**Inflection**, or **Inflexion** (from Lat. *inflectere*, to bend), in grammar, the variations, changes, or modifications of form which words undergo to express various relations with other words of a sentence or clause. It forms an important div. of philology, and is subdivided into conjugation (verbs) and declension (nouns, pronouns, adjectives). Gender, number, and voice as well as case, tense, mood, and person may be expressed by I., and some grammarians include comparison of adverbs and adjectives also under this head. I. is, roughly speaking, a mark of Indo-Germanic and Semitic languages as opposed to agglutinative or analytic. It may be internal, initial, or final in Semitic, but is usually final in Indo-Germanic words, except in cases of reduplication. Modern English has comparatively few I.s left. See also GRAMMAR; PHILOLOGY. See O. Jespersen, *Progress in Language with special reference to English*, 1894.

**Inflorescence**, in plants, is the floral region, the mass of flowers, the botanical term to indicate the manner in which the flowers of a plant are grouped. The simplest form of all is a solitary terminal flower, e.g. daffodil, but more often there is a more or less complex system of branching (q.v.) in which the branches do not develop into foliage-shoots but bear flowers. The stalk upon which the flowers are borne is known as the peduncle or rachis; if the flowers spring directly from the peduncle they are said to be sessile, but if they depend from a secondary stalk they are said to possess pedicels. An I. found at the apex of a shoot is terminal, if found in the axils of leaves it is axillary. There are 2 distinct types of I.: indefinite or racemose, when the flowers at the base open first; and definite or cymose when the flowers at the apex first become mature. One of the commonest forms of the indefinite I. is the raceme, in which the flowers are connected to the peduncle by pedicels, e.g. lily-of-the-valley and bird cherry. The corymb resembles the raceme in being stalked, but the pedicels, produced at different levels, are all of different lengths and the flowers are brought to the same level, e.g. candytuft, *Sorbus domestica*. The spike is an indefinite I. with sessile flowers, e.g. plantain and gladiolus, while the catkin is a long, deciduous crowded spike bearing unisexual flowers,



TYPES OF INFLORESCENCE

A. Raceme—Bird-cherry. B. Panicle—Traveller's Joy. C. Corymb—*Sorbus domestica*. D<sup>1</sup>. Catkin—Hazel. D<sup>2</sup>. Single male flower of Hazel Catkin. E. Umbel—Dwarf Cherry. F. Capitulum or Head—*Olearia haastii*. F<sup>1</sup>. Stamens and pistil of inner florets. F<sup>2</sup>. A single ray floret. G. Thyrus—Lilac. H. Dichastium—Euonymus. I. Hypanthodium—Fig. I<sup>1</sup>. Single female flower. I<sup>2</sup>. Single male flower. J. Verticillaster—Jerusalem Sage. J<sup>1</sup>. Longitudinal section of same. K. Glomerule—Box.

e.g. hazel and birch. In the panicle the axis of the I. branches, and each branch forms a raceme, e.g. oats and traveller's joy; in the simple umbel all the pedicels are given off at one level owing to the abbreviation of the mother-axis, e.g. dwarf cherry and cowslip; in the compound umbel the axis branches in an umbellate fashion, each branch producing a simple umbel, e.g. hemlock and carrot. The type common to flowers of the family Compositae is the capitulum or head, in which the flowers are sessile and are borne on a shortened mother axis, e.g. *Olearia haastii* and daisy. The curious I. known as a thyrus is mixed, being a raceme itself composed of short cymes, and is found in the lilac and horse chestnut. A dichasium such as is seen in *Euonymus* is a biparous cyme in which each axis produces 2 daughter axes and ends in a flower. The I. of the fig is a peculiar, hollow, pear-shaped capitulum, and the flowers are produced internally; this is called a hypanthodium. The verticillaster, common to the dead-nettle and Jerusalem sage, consists of what appear to be whorls of flowers, but these in reality stand one above the other and are borne in the axils of leaves on opposite sides of the stem. Finally, a glomerule consists of a number of cymes united to form a head, e.g. box and nettle.

Influenza seems to have been spread through Europe during the Crusades. Supposed to be an infliction of heaven, I. was named the *influentia coeli*. From this was derived the It. name I. first used in England by Huxham in 1767. I. is an epidemic (often a pandemic) disease, and spreads very rapidly. The great epidemic of 1889-90 started in the Far East and spread rapidly over all Europe. A further pandemic occurred in 1918. Since then it has appeared epidemically annually in some part of the Brit. Isles. There are two opinions on the epidemiology of I. One is that the virus persists either in a latent form or as a series of sporadic cases. From one or other of these sources an epidemic occurs at times when the susceptibility of the population permits. The second view is that the virus exists as a continuous chain of infection, first in the N. and then in the S. hemispheres. There is evidence for both opinions, and probably both are correct. The cyclical incidence of epidemics is explained partly by the transient immunity conferred on sufferers after an attack, and partly because the type of virus is modified from one epidemic to another. Diagnosis of the disease, though comparatively easy during epidemics, is still unreliable in isolated cases because the symptoms of the various forms of I. are so diverse. The view that these diverse forms are manifestations of the same disease, varying in character and intensity, is an outcome of the work mainly of Brit. epidemiologists.

The disease is sudden in onset and usually characterised by signs of inflammation of the respiratory tract, with coryza and cough; the sense of taste is markedly affected. In nearly all cases there is

much aching in the back and the joints generally. Prostration is out of proportion to the apparent severity of the illness and is often accompanied by mental depression. Weakness persists well into convalescence, which may be slow. As an epidemic gains ground the cases tend to become more severe, and pneumonia is a more frequent complication.

In epidemics of I. the predominant bacteria found in individuals suffering from the disease are *Bacillus influenzae*, discovered in 1892 by Pfeiffer and Kitasato, various streptococci, and pneumococci, but none of these seems to be invariably present. Falk and his colleagues working on the I. epidemic in Chicago (1928-9) identified a streptococcus which they believed to be the primary infective agent. It is known now, however, that the cause of I. is a filter-passing virus identified by C. F. Andrews and his colleagues in 1933. The viruses of I. pass easily through the pores of such fine filters as earthenware rods which can hold up the larger bacteria. Three main groups of I. viruses are known, called A, B, and C. The A and B groups have many substrains with distinct antigenic properties of their own. The A. viruses have caused most of the major epidemics in the past 20 years. The B viruses are more often the cause of sporadic cases and localised epidemics. 1. A attacks people of any age, whereas B and C are more to the fore in childhood infections. After the viral aetiology of I. was estab. in 1933 attempts were made to immunise human beings against the disease, but it was not until 10 years later that a successful method was achieved. But in 1947 an essentially similar vaccine was ineffective because a new strain of virus A had appeared. This posed a problem of how to incorporate in future vaccines virus strains likely to be encountered in an epidemic. Significant differences were noted in the A sub-strains isolated in I. outbreaks in Britain in 1951. Clearly these changes in the strains of viruses will necessitate changes in the composition of vaccines from time to time. Another problem is to produce a sustained immune response at a high level. Research is being carried on on both these problems and it seems that solutions will be found. During recent years efforts have been made to collect accurate statistics relating to I. The I. Unit of the World Health Organization is engaged in research on this subject.

*Asian flu.* Early in 1957 an epidemic of I. started in the E. (hence the name) and swept over the rest of the world, reaching England and America in the autumn. The causative virus was a variant of I. type A, of which there had been no previous experience in the 20th cent. Although the virulence could not be compared with that of the 1918 epidemic, it caused dislocation of industrial and school life. Mortality was low, being mainly due to pulmonary complications from secondary bacterial infection.

See BACTERIA AND EPIDEMIOLOGY. See

C. H. Andrewes, 'Influenza, World Health Organisation Monthly Bulletin No. 20, 1954 and 'Medical Research Council Report on Clinical Trials of Influenza Vaccine,' *British Medical Journal* (vol. 2), 1953.

**Information:** 1. Mode of proceeding against persons accused of crimes other than felonies. It is a speedy process, which brings an offender to trial.

2. A charge made to a magistrate of some offence punishable on summary conviction. A justice cannot issue a warrant for arrest in the first instance, except upon an I. or complaint in writing made on the oath of the informant or another person on his behalf. Where a summons only is issued in the first instance the I. need not be on oath or in writing. See Archbold's *Criminal Pleading, Practice, and Evidence* and Russell, *On Crimes*.

**Information, Central Office of,** estab. 1 April 1946, as a non-ministerial gov. dept with a separate vote, to continue most of the common service duties formerly carried out by the Ministry of Information. It acts as the central gov. agency for the production and distribution of publicity material on behalf of gov. depts, and for technical advice to them, for home and overseas purposes. Its offices are at Norgeby House, Baker Street, London, W.1.

**Information, Ministry of,** estab. as a Brit. gov. dept in Sept. 1939. Almost every aspect of Brit. publicity was dealt with by the M.O.I., and depts included the press and censorship organisation, film publicity, and a reference library of newspapers from all over the world. Information on every important development of the war was supplied to newspaper representatives, and opportunities were provided for leading personalities to tell their stories to pressmen and to answer questions. In Dec. 1945 the M.O.I. was closed and in its place were set up departmental information services supplemented by a central office (see INFORMATION, CENTRAL OFFICE OF).

**Informers.** A common I. was formerly one who preferred an accusation against another with the object of recovering a statutory reward for so doing. Actions by common I.s have been abolished.

**Infra-Red Heating.** The radiation emitted by incandescent carbon-filament lamps is largely at the red and infra-red part of the spectrum, i.e. radiant heat, and batteries of such lamps with reflectors are used for drying of paint and varnishes. The heat is steady and can be uniformly distributed over large surfaces, it is not too violent, it is easily regulated and controlled, and it emits no fumes that might damage the finish. The whole installation is easily moved.

**Infra-Red Rays,** invisible heat rays of longer wave-length than the longest visible rays of the spectrum, i.e. beyond the red; first observed by Herschel in the solar spectrum in 1800. They are of service in long-distance photography (see photograph overleaf), and they increase the power of searchlights, etc., to penetrate

clouds and fog. Portraits can be taken, with short exposures, in rooms 'illuminated' by infra-red light only, using plates sensitive to I.-R. rays. I.-R. telescopes combined with searchlights were used during the Second World War for night observation. Astronomers have made use of infra-red light for photographing the planets, and have thus obtained much useful information—on the planet Mars in particular. I.-R. rays are also used in therapeutics. See also LIGHT; RADIATION; REFRACTION; SPECTRUM AND SPECTROSCOPE.

**Infusion,** process of extracting the active principles of vegetable substances without boiling. The product of the process is also termed an I. The general method is to digest the parts containing the substance to be extracted in water. If the substance is volatile and is soluble in cold water it is better to digest the material in cold water, as it can then be extracted without admixture of other substances. Many active principles are, however, more readily soluble in hot water, and the temp. should be regulated according to the degree of volatility of the substance. When it is necessary to boil the mixture the process is known as decoction (q.v.); this is often accompanied by chemical changes in some of the substances concerned.

**Infusoria,** term applied to numerous classes of active protozoa appearing in stagnant infusions of animal or vegetable matter. The majority of them occur in great numbers, and are provided with vibratile locomotor processes of their living matter, which are practically permanent, and express the predominantly active constitution of these cells. When dirty water is held in a glass vessel between the eye and the light I. are generally quite visible, though most of them are microscopic. They occur both in fresh and salt water.

**Ingatestone,** small tn of Essex, England, 6 m. SW. of Chelmsford. It has an interesting Norman church with a 15th-cent. tower, and Rom. bricks set in the walls by the builders. An Elizabethan manor-house, I. Hall, was a refuge for Rom. Catholic priests during the Reformation. Part is now used in connection with Essex Record Office. Pop. 2650.

**Inge, Very Rev. William Ralph** (1860–1954), divine, b. Crayke, Yorks; eldest son of Rev. Wm Inge, D.D., provost of Worcester College, Oxford. Educ. at Eton and King's College, Cambridge—where his career was brilliant. He was assistant master at Eton 1884–8; fellow and tutor of Hertford College, Oxford, 1889–1904; Lady Margaret prof. of divinity Cambridge, 1907–11; dean of St Paul's Cathedral, 1911–34. In theology, I. was an extremely liberal Protestant—holding miracles and all pertaining to them very cheap. But what made him one of the most prominent clerics in England was his insistence, in learned books and popular journalism, on Platonic principles as guides to Christian practice. His apparent opposition to democracy, combined with his dry and austere manner in the



A PANORAMA OF THE ISLE OF MAN

This view was taken SW. of Wastwater, Cumberland, and covers forty miles. It was taken with a special long-focus lens and the infra-red plate and filter. The greater part of the eastern coast of the island is shown from a point near Ramsey to the low-lying land in the southerly part of the island. The range of peaks which stretches roughly across the centre of the island appears in the picture in remarkable detail considering the great distance. The rounded summit of Snafell is a distinguishing feature of the right-hand half of the picture. To the N. is North Barrule, and the peak of South Barrule, over fifty miles away from the camera, shows clearly in the left-hand half of the picture.

pulpit, earned him at one time the sobriquet of the 'Gloomy Dean.' His writings include *Society in Rome under the Caesars*, 1886, *Eton Latin Grammar* (with Rawlins), 1889, *Christian Mysticism*, 1899, *Faith and Knowledge*, 1904, *Studies of English Mystics*, 1906, *Truth and Falsehood in Religion*, 1906, *Faith*, 1909, *Speculum Animae*, 1911, *Types of Christian Saintliness*, 1915, *The Philosophy of Plotinus*, 1918, *Outspoken Essays*—(first series, 1919), (second series, 1922), *The Victorian Age*, 1922, *Personal Religion and the Life of Devotion*, 1924, *The Platonic Tradition*, 1926, *Lay Thoughts of a Dean*, 1928, *The Church in the World*, 1927, *Christian Ethics and Modern Problems*, 1930, *God and the Astronomers*, 1933, *A Rustic Moralist*, 1937, *A Pacifist in Trouble*, 1939, *The Fall of the Idols*, 1940, *Mysticism in Religion*, 1947, and *The End of an Age and other Essays*, 1948. An excellent selection from his works is *Wit and Wisdom of Dean Inge*, by Sir James Marchant, 1927.

Ingelheim, Ger. tn in the Land of Rhine-land-Palatinate (q.v.), 8 m. W. of Mainz (q.v.). Oberingelheim has an anct fortress and a medieval church; in Niederingelheim there are the remains of a palace of Charlemagne (q.v.). The tn is the centre of a wine-producing dist. Pop. 14,000.

Ingelmunster, tn in the prov. of W. Flanders, Belgium, 7 m. N. of Courtrai, on the canal from the R. Lys to Roesselaere.

It manufs. carpets, linen, lace, velvet, and salt. Pop. 9400.

Ingelow, Jean (1820-97), novelist and poetess, b. Boston, Lines. She pub. her first poems, *A Rhyming Chronicle of Incidents and Feelings*, 1850, anonymously. Her poems are characterised by their novelty and charm, and her novels also are worthy of attention. Among her vols. of verse are *Poems*, 1863, which contained 'The High Tide on the Coast of Lincolnshire, 1571,' one of her best, and 'A Story of Doom,' 1867. Among her novels are *Mopsa the Fairy*, 1869, *Off the Skelligs*, 1872, *Fated to be Free*, 1875, and *Don John*, 1876. See *Some Recollections of Jean Ingelow and her Early Friends*, 1901, and an appreciation by E. A. Stodman, 1935.

Ingenohl, Friedrich von (1857-1933), Ger. admiral, a great favourite of the Kaiser Wilhelm II, whose yacht he once commanded. He was commander-in-chief of the China station previous to his appointment to the Supreme Command of the Ger. High Sea fleet in 1913. He was still in command on the outbreak of the First World War. His policy of raiding with cruisers such as at the Dogger Bank (q.v.) was not approved owing to its costliness, and in consequence he was placed on the retired list, being succeeded by Adm. von Scheer.

Ingersoll, Robert Green (1833-99), Amer. lecturer and lawyer, b. Dresden, New York, the son of a Congregational minister. He practised law in Illinois, and in



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## INFRA-RED PHOTOGRAPHY

The foreshortening caused by the long-focus lens gives the Irish Sea the appearance of a great lake. Some objects, such as foliage, dyed materials, etc., photograph differently when illuminated by ordinary light and by infra-red light. Foliage, for instance, as seen in the photograph, reflects the infra-red strongly and hence appears dark in the negative and white in the print, so that grass and trees photographed in sunshine appear as if covered with hoar frost or snow.

The photograph was taken with a Taylor-Hobson-Cooke lens, and Iford infra-red filter and plate.

1857 went to Pooria. In 1862 he became a colonel in a cavalry regiment, and in 1867 was made attorney-general of Illinois. He became known as 'the great agnostic' by reason of his lectures directed principally against Christianity. Among his writings are *The Gods and other Lectures*, 1876, *Some Mistakes of Moses*, 1879, and *Great Speeches*, 1887. See E. G. Smith, *The Life and Reminiscences of Robert G. Ingersoll*, 1904.

**Ingersoll**, tn of Oxford co., Ontario, Canada. It stands on the Canadian National and Canadian Pacific Railways, and on the Thames R. It manufs. agric. implements and furniture. Cheese, butter, and grain are produced in the dist., and there are flour and planing mills. Pop. 6728.

**Inghirami**, Tommaso (surnamed Fedra from his success as Phaedra in Seneca's *Hippolytus*) (1470-1516), poet, orator, and humanist of an It. noble family. Seven of his Lat. orations were pub. at Rome in 1777, and Erasmus says he was called 'the Cicero of his age.' Julius II made him keeper of the Vatican library. He left MSS. of a *Commentary on Horace's 'Ars Poetica,'* and *Abstract of Roman History*.

**Ingleborough**, hill in the W. Riding of Yorks, England, about 17 m. SE. of Kendal. On the S. is I. Cave containing stalagmites and stalactites, and on the top of the hill are the remains of an old camp. Altitude 2373 ft.

**Inglesford**, see HUNGERFORD.

**Ingleson**, vil. of the W. Riding of Yorks, England, situated on the Greta, about 10 m. NW. of Settle. In the vicinity are limestone caves and picturesque waterfalls. Pop. 2000.

**Inglis**, Charles (1734-1816), Anglican bishop, b. New York. He was a loyalist during the War of Independence and went to Halifax when the English evacuated New York. Consecrated in London in 1787 first Bishop of Nova Scotia, he was thus the first Eng. colonial bishop.

**Inglis**, Elsie Maud (1864-1917), Scottish woman surgeon, b. Naini Tal, India. She spent part of her childhood in Tasmania. Qualified 1892. Joint surgeon, Edinburgh Hospital for Women and Children. On the outbreak of the First World War she formed Scottish Women's Hospitals. In Serbia (1915) she helped to subdue typhus; was captured with wounded at Krushevatz. On her release she returned home and later (1916) went by Archangel to Bessarabia with hospital staff to attend the S. Slav Div., but the privations she had suffered while in captivity undermined her health and she d. in the following year, soon after returning to England.

**Ingoldsby**, Thomas, see BARHAM, RICHARD HARRIS.

**Ingolstadt**, Ger. tn in the Land of Bavaria (q.v.), 43 m. N. by W. of Munich (q.v.). It is on the Danube (q.v.), which was diverted to pass the tn in 1363. In

1392 it became the seat of the Bavarian dukes, and during and after the Thirty Years War (q.v.) it was an important fortress and a prosperous trading centre. It declined after the transfer from the tn of its univ. (founded 1472) in 1800, and the dismantling of its defences. There was much damage during the Second World War. I. has many fine old churches, including the splendid Gothic *Liebfrauenmünster* (1425), has 2 castles (13th and 15th cents.), and has beautiful Gothic and baroque houses. It has motor-car and textile-machinery manufs. Pop. 46,000.

**Ingot**, cast mass of metal or alloy for working into other forms. An ingot-mould is a flask in which metal is cast into blocks.

**Ingrain Dyes**, see DYE.

**Ingram, Arthur Foley Winnington**-, see WINNINGTON-INGRAM.

**Ingram, John Kells** (1823-1907). Irish author and economist, regius prof. of Greek at Trinity College, Dublin, in 1866 and vice-provost in 1898. His *Political Economy*, contributed to the *Encyc. Brit.*, was pub. separately in 1888, and trans. into 8 European languages and into Japanese. Other works are *History of Slavery and Serfdom*, 1888, *Outlines of the History of Religion*, 1900, *Human Nature and Morals according to A. Comte*, 1901, *Practical Morals*, 1904, and *Final Transition*, 1905. As an undergraduate he produced *The Memory of the Dead, or Who Fears to Speak of 'Ninety-Eight?*, 1843, a poem adopted as the anthem. See C. L. Faulkner, *Memoir of John Kells Ingram*, 1907. Sir R. Palgrave, *Dictionary of Political Economy* (App. 1908).

**Ingres, Jean Auguste Dominique** (1780-1867), Fr. painter, b. Montauban. In 1796 he became a pupil of David, and in 1801 was successful in obtaining the Grand Prix. In 1806 he proceeded to Rome where he studied and worked until 1820, leaving in that year for Florence. Here he stayed 4 or 5 years and then returned to Paris. While in Italy he had carefully studied Raphael, and he brought the latter's influence to bear upon David's teaching. He again visited Rome and finally returned to Paris in 1841, having been made grand officer of the Légion d' Honneur. Among his pictures are 'The Vow of Lulus XIII.', 'Apotheosis of Homer', 'Stratonice', 'Oedipus and the Sphinx', 'The Odalisque', and 'La Source.' He is notable for his exactitude of observation, perfection of design, and the purity of his line. His portrait drawings in pencil are unrivalled. See lives by R. Balze, 1880, O. Uzanne, 1906, H. Lapauze, 1911, L. Fröhlich-Bum, 1924, H. Graber, 1927, L. Hourticq, 1928, and J. Cassou, 1947.

**Ingulf** (d. 1109), abbot of Crowland in Lincs, an honour conferred on him by William of Normandy, whose secretary he had been. The *Historia Monasterii Croylandensis*, printed by Henry Savile, 1596, once attributed to him, is now considered to be a forgery.

**Inhabane**, cap. of a dist. of the same

name, seaport on the Bay of I. in Portuguese E. Africa. The dist. produces rice, sugar, cotton, timber, ground-nuts, copra, maize, and rubber. Pop. (dist.) 31,457 (1950), of whom 700 are Europeans.



J. A. D. INGRES

**Inheritance**, in law, term restricted to the legal right to property by descent, or, by extension, to the property inherited. Rom. law differed radically from Eng. law in 2 important respects: (1) In Eng. law the word 'heir' (and its derivatives) is confined exclusively to the person who, prior to 1925, was entitled on an intestacy to real estate, and any title or dignity and heirlooms passing with the estate. (2) The maxim *Nemo est heres viventis* (no one is the heir of a living person) is rigidly applied so as to exclude a prospective heir or possible heir from any rights in the property until the death of the ancestor. As a corollary of (1), it is to be observed that a person named in a will of realty is by Eng. law a *devisee* and not an heir; in Rom. law the term 'heir' applied indiscriminately to all who, being in the power of the head of the family, had a natural claim on his property, irrespective of whether they took under a testament or on intestacy. To exclude effectually his own heirs, the testator had to do so by name in the will. But it was essential to institute an heir of some kind, for a Rom. testament was of no effect unless there was such a person to succeed to the *persona* of the testator, i.e. to continue his legal existence after death. Later, excluded children were given the right to impugn the will if omitted in it, and recover a certain share of the property. In Eng. law the fundamental difference in the canons of descent of real property from the Roman and systems founded on the civil law is that the rule of primogeniture has prevailed from remote feudal times until the Administration of Estates Act, 1925. The old rules of descent to



freeholds of I. were these: (1) Descent is traced from the last 'purchaser' (a technical term meaning the person who last took in any other way than by descent). (2) Descent is to the lineal issue *in infinitum*. (3) Males are preferred to females; primogeniture determines the male entitled, but females succeed equally as co-parceners (q.v.). (4) Remoter lineal issue 'representing' their own parents (who would if not deceased have succeeded to the property) take *per stirpes*, i.e. as opposed to taking *per capita* or in their own right. (5) The nearest ancestor takes on failure of lineal issue. The rules of intestate succession are now uniform for both real and personal property. See SUCCESSION, INTESTATE. See also BROUGH-ENGLISH and GAVELKIND.

**Inhibition**, used in a technical sense of the sentence passed upon a clergyman by which he is prevented from the exercise of his eccles. functions; it can therefore be used as a weapon for enforcing the laws of the Church. Also a writ to prevent a judge from proceeding further in a case.

In psychology, the word used for a subconscious urge to express the personality in some way which the conscious mind forbids.

**Inia** (*Inia geoffrensis*), toothed freshwater dolphin, found in the lakes near the Cordilleras and in some of the upper tribs. of the Amazon, where it is regarded with superstition by the Indians. It is about 8 ft in length, has a long cylindrical snout with stiff hairs, and only the merest rudiment of a dorsal fin. It is generally found in troops of three or four and is hunted on account of the oil it yields. It feeds chiefly on fish.

**Inini**, see FRENCH GUIANA.

**Inisfail**, see INNISFAIL.

**Inisheer**, see ARAN ISLANDS.

**Inishkeel**, is. of Ireland, belonging to co. Donegal, and situated in Gweebarra Bay, with a capacious harbour.

**Inishmaan**, see ARAN ISLANDS.

**Inishmore**, see ARAN ISLANDS.

**Inishowen Peninsula**, N. of Co. Donegal, Rep. of Ireland, tapering to Malin Head, the most N. point of Ireland and conspicuous to travellers on the N. Atlantic route.

**Initial**, first letter of a word, especially of a name. Ornamentally arranged, I.s are a feature of Irish (see KELLS, BOOK OF) and Carolingian book decoration, often of full-page size and rich in colour. In the text of the Incunabula (q.v.) they were usually inserted by hand, later with woodcuts (e.g. Holbein's *Inance of Death*) or copper engraving, fitted to the typographic style. The first *printed* I. appeared in the Psalter of 1457. See also ABBREVIATIONS and CAPITAL.

**Initials**. In some cases signature by I. constitutes a good signature in law. Section 12 of the Civil Procedure Act, 1883, provided that in all actions upon written instruments it should be sufficient to designate any of the parties by their I., but the section is now obsolete. There are decisions to the effect that signature by I. is allowable in the case of memoranda and agreements comprised under the

Statute of Frauds (see FRAUDS, STATUTE OF). By the Wills Act, 1837, a will or codicil may be validly signed by I. only. Probably there are no documents which in the eye of the law must be signed in full, although it is clearly unwise from the point of view of identification not to do so. A deed certainly requires no signature, the traditional essentials of every deed being no more than sealing and delivery. In Scots law I. also constitute a good signature of a deed, but the genuineness of the I. must be proved.

**Initiative in Legislation**. It is a commonplace of political science that very few constitutions are really so framed as to ensure the representation of the views of the majority of the electorate upon any one particular issue. Some deny that a representative chamber like the Eng. House of Commons is returned for the purpose of effectuating the will of the majority upon every single issue, on the ground that legislative authority and omnipotence rest with Parliament and not with the electorate, and it is further asserted that any relation of agency as may subsist between the electorate and its representatives subsists only so far as the latter can be said to be entrusted with a mandate for carrying out a general party policy. Sir A. Dicey points out that it is inconsistent with the legal notion of Eng. parl. sovereignty to suppose that parl. electors have any legal means of initiating, sanctioning, or repealing the legislation of Parliament, because the opinion of the electorate can only be expressed through Parliament. Not that this view of the functions of the electorate is by any means essential to a representative polity, for in Switzerland all parl. deliberation is regarded as purely preliminary, and by the process of the Obligatory Referendum of legislative proposals a legislative measure, even after being passed by the Federal Assembly, must on the demand of a certain number of citizens be submitted to the electors for formal approval before it can become law. This, indeed, was done in the times of ancient Rome in the question literally asked of the people, 'Jubetisne?' Some of the Swiss cantonal constitutions go even further than this, by the device of the right of I. This right makes it incumbent on the legislature to pub. proposals advocated by a certain proportion of the electorate, and cause them to be voted on at the local polling stations. It must be conceded that the I. ensures the literal observance of the will of the majority, but it is questionable whether it is a sound political expedient to cast on the people at large the actual business of law-making. Practised politicians must almost of necessity be better able to formulate the general aims of the majority in detailed proposals than the people themselves. Moreover, the people are apt to be so blinded by prejudice or party passion as to be incapable of weighing up all that can be said for and against a proposed law, and certainly it must hamper indefinitely the work of legislation if every important amendment suggested at any stage of a

Bill has to be referred to the electorate for approval. Sidgwick, inspired by Bentham, advances the ingenious solution of making a member's election annually renewable with a view to deferring the final ratification of the legislative measures of the year until the ann. election, so that in the interim the people may have an opportunity for cancelling any unpopular legislative innovation. For a full discussion of the question of the control of the people over gov., see H. Sidgwick, *Elements of Politics*, 1891, ch. xxvii.

**Injection**, act of introducing a substance into one or other of the cavities of the body; or the substance so injected. The substance is generally employed as an aqueous solution and is intended to have a curative effect by direct action on the organ into which it is injected or to which it is readily conveyed by the natural processes of the body. Hypodermic I.s are made by piercing the skin and introducing the active substance into the subcutaneous tissues by means of a small syringe. Intravenous I. is the introduction of a solution directly into a vein. Intramuscular I. is the introduction of a solution into the substance of a muscle. Vaginal, urethral, and rectal I.s are other forms.

**Injector**, apparatus for forcing water into a boiler against the pressure of the steam. M. Henri Giffard invented an I. in 1858 which is now in general use. Steam from the boiler passes into a conical pipe, the size of the opening of which can be regulated by an adjustable cone. As the steam rushes out of this, it meets the feed water, and is condensed, so creating a partial vacuum, which causes the water to rush in with a very great velocity, and to pass down another conical pipe. The escaping steam behind helps to drive it down this pipe. As it emerges from the narrow end of this conical pipe, it passes into the narrow end of another one. So, as it passes on down this expanding cone, its velocity slackens and the pressure increases. So the water is forced into the boiler through a non-return valve. This I. may be worked either by exhaust steam from the engine or by steam from the boiler. See **BOILERS**.

**Injunction** is 'an order of the Court which restrains the commission or continuance of some wrongful act, or the continuance of some wrongful omission' (E. H. T. Snell, *Principles of Equity* (24th ed.), 1954).

I.s are either *prohibitive* or *mandatory*: the former forbids the commission of some wrongful act (e.g. the blockage of a right of way or the continued infringement of copyright) and the latter orders the commission of some positive act (e.g. the pulling down of a building unlawfully erected). I.s are either *interlocutory* or *perpetual*. An interlocutory or interim I. is an order made on *prima facie* evidence on affidavit by the plaintiff, with the object of preserving the *status quo* between the parties, pending the trial of the dispute; it is usually granted on the plaintiff's undertaking to pay damages if his claim

falls. A perpetual I. is the permanent order made when the issues between the parties have been decided at the trial. The I. was originally a remedy given by the courts of equity (q.v.) to mitigate any hardship inflicted by actions in the common law courts. I.s may now be made by all divs. of the High Court and the Co. Court. Non-compliance with I.s is punishable by committal to prison for contempt of court (q.v.). The court may award an I. and/or damages. Examples of I.s are orders prohibiting the commission of nuisances, the pub. of libels, the infringement of copyright or patents, and the wrongful expulsion of members from trade unions.

**Injuries to Property**, see **MALICIOUS**.

**Ink**, material used for producing records on paper and similar substances. Its hist. dates back to 2500 BC when the Chinese made I. which was used on papyri, perfectly legible samples of which are in the Brit. Museum (see below, *Chinese ink*). Later the Romans and Greeks used plant juices and coloured pigments ground in water to produce coloured I.s. A natural I. was also employed, consisting of the dried l.-sac of the cuttle-fish dissolved in water to a sepia colour. In the 11th cent. AD, extracts of tree bark were mixed with iron to give a blackish liquid which gave a good mark on paper but was very unstable. Up to the early part of the 19th cent. various recipes were available, mainly based on extract of galls and iron; those were satisfactory for their immediate purpose but had no keeping qualities or stability. It was left to Dr Henry Stephens in 1832 to perfect the blue black I. as we know it to-day.

This depends on mixing suitable proportions of tannin materials with iron. The tannin substances are derived from gall-nuts which occur in China, Persia, and Turkey, by extraction or fermentation, whilst the iron used is in the form of the sulphate, known commercially as copperas. When these 2 materials are brought together in the presence of water, a dark solution is formed which if used as an I. would give a scarcely legible trace on the paper, but would, however, rapidly darken to a black colour by oxidation in the atmosphere. A blue aniline dye is added to give legible writing, and this colour is absorbed into the fully developed black colour and combines with it to reinforce the density of colour. Thus the blue black I. is an iron-gall type which writes blue and develops black. The iron gallo-tannates are in the soluble condition in the fluid I., but when exposed as a trace on paper the oxygen of the atmosphere converts them to the insoluble form, which is therefore waterproof as well as permanent, after full development. To ensure that oxidation does not occur in the bottle, inhibitors have to be added in the form of mineral or organic acids, which stabilise the I. and postpone the conversion to the black insoluble condition until the I. reaches the paper and can be exposed to the air. Certain other additives are required to prevent mould

growth, adjust the flow of the I., and control its penetration into the paper.

*Chinese ink* is the original I. made in China from earliest times, compounded of lampblack and gum, moulded into sticks, sometimes perfumed and dried. It was used on papyrus by moistening with water and is still obtainable to-day as 'Chinese Stick I.'

*Coloured inks* are usually solutions of aniline dyes derived from coal-tar, together with suitable preservatives and other additives to control flow of the I. and penetration of the paper. Thus Eosine can form the basis of a red I. whilst Acid Green and Methylene Blue may be used for green and blue I.s respectively. Gold and silver I.s are obtained by mixing the finely divided metals or their substitutes with gum and a solution of soluble silicate. The initial colour of these I.s is usually strengthened by the addition of aniline dyes, but as most aniline dyestuffs are fugitive to light in varying degree, these coloured I.s are not so permanent as iron-gall I.s, which retain their iron content whatever else happens to them.

Washable I.s are becoming popular as they can easily be washed out with soap and water if spilled on fabrics. They are usually blue, a dye being used that will stain the paper fibres without fixing. As a result the writing tends to smudge, especially in the presence of moisture.

*Copying inks* are made by the addition of glycerine, gum, or dextrin to a concentrated soluble tannin I. Addition of these materials greatly retards the oxidation of the tannate of iron by forming a film over the surface of the writing. This dissolves when the damp tissue paper is applied and an impression is thereby obtained.

*Indian ink* is an I. which originated in China and was formerly known as Chinese I., but nowadays is a black waterproof I. containing carbon black and shellac intimately ground together with other substances to a uniform dispersion.

*Marking ink* was formerly made with a silver salt as a base and required heat to develop the black mark. It has been almost entirely superseded by a complex mixture of organic and inorganic salts which gives a precipitate of aniline black on the fibres of the material being marked. It is most important that it should not be heated before washing, which must take place within a few days of marking to avoid damage to the fabric.

*Printers' inks* consist of pigments dispersed in varnish-like media, which may contain linseed oil, resins, and solvents. The composition of such media varies considerably with the printing process and the method used to cause the I. to dry (oxidation, evaporation, penetration, precipitation). Pigments consist of carbon black, some manuf. inorganic materials such as lead chromate, Prussian blue titanium oxide, and a large number of complex organic materials related to the dyes used on textiles.

*Sympathetic or invisible inks* are any

colourless liquid or solution of a substance which is invisible until treated with heat or some chemical reagent. Thus a solution of galls may be used which produces a writing which on washing over with a weak solution of iron salt becomes dark. If a solution of a cobalt salt is used for writing, no characters are visible until the paper on which the writing has been made is warmed. The characters then appear blue. These I.s have some application in security writing, as, for instance, characters written in a solution of quinine sulphate in water which are invisible on paper but are revealed in distinctive and intense colours when submitted to the ultra-violet lamp.

*Inkerman*, locality on E. outskirts of Sevastopol. There were ancient Taurian dwellings here, and in the 12th-15th cents. a cave tn. Here on 5 Nov. 1854 the British met the Russians in battle, and after a brave resistance, and when defeat seemed imminent, were reinforced by the French and gained the victory.

*Inkster*, vil. in Wayne co., SE. Michigan, U.S.A., a residential suburb 14 m. W. of Detroit. It has truck and poultry farming and manufs. flower pots. There is a modern psychopathic hospital. Pop. 16,728.

*Inlaid Linoleum*, see LINOLEUM.

*Inland Revenue, Board of*, had its beginning when Commissioners of Stamps were appointed in 1694 in the reign of William of Orange. Twenty-five years later, in 1719, Commissioners of Taxes were appointed. These commissioners worked independently of each other until 1834, when a Consolidated Board of Stamps and Taxes was estab. The next big change took place in 1849 when the Commissioners of Excise were absorbed by the Board, which now adopted its present title. In 1908, however, all matters connected with Excise were transferred to the Board of Customs. The 3 sources of I. R. are Death Duties, Stamps, and Taxes. Salaries and expenses of the Board for 1955-6 were £35 million. The chairman is paid £3500 per annum and the deputy chairman £2500. The seat of the Board is at Somerset House, Strand, London, WC. See also CUSTOMS DUTIES; EXCISE DUTIES; INCOME TAX; TAXATION.

*Inland Sea (Setonaikai)*, sea of Japan, situated between the main is. on the N. and the is. of Shikoku and Kyushu on the S. It is about 240 m. in length, and its greatest breadth is 40 m. Its shores are especially beautiful, and the waters are very calm.

*Inland Water Navigation*, see CANAL.

*Inlaying*, method of ornamenting flat surfaces by the insertion into one material of a substance differing from it in colour or nature. Thus the basis may be of wood, metal, or stone, and the inlaid or encrusted material of different wood, or of ivory, marble, tortoise-shell, precious metals, etc. The art of I. is practised in the fabrication of furniture and artistic objects of various kinds. I. in wood is generally known as 'marquetry' (q.v.).

in metals it is termed 'damascening' (q.v.), and in marble and precious stones it forms a variety of 'mosaic' (q.v.) work. The word *I.* is, however, generally understood to be limited to the first of these 3. It consists in the fitting together, to form patterns, of differently coloured pieces of wood. In the Stuart period a good deal of *I.* was executed in England upon cabinets, chests of drawers, etc. In Italy the most beautiful examples of the art are on panels or choir-stalls, and in Germany musical instruments, chests, and cabinets are often lavishly inlaid.

**Inman, Henry** (1801-46), Amer. artist, b. Utica, New York, studied under Jarvis. He is distinguished principally for his portraits of Amer. and Eng. statesmen and men of letters.

**Inn, riv.** In Austria, one of the chief affluents of the Danube. It rises in the Engadine, Switzerland, and flows through the Tirol (passing Innsbruck) and Bavaria. Length 300 m.

**Innampura**, see LIMPOPO.

**Innate Ideas**, in the philosophy of Descartes, are the clear axiomatic principles whose certainty cannot be doubted. They are not only certain, but universal; and as they are not the result of empirical experience, they may be regarded as the primitive germs of or the irreducible minimum of truth, which nature has planted in the human intellect, and which, obscured in part by errors due to bodily conditions, the mind would find clearly within itself if it were freed from disturbing influences. Hobbes describes this kind of reasoning as merely metaphorical, and considers that there is no criterion for distinguishing this assumed clearness: to which objection Descartes replies that there is a distinction between a natural inclination to believe a thing which may nevertheless be false and a natural light which makes us know a thing to be true; which reasoning appears to be no more than superadded metaphor. Descartes applied his principles to the study of mathematics, and made remarkable progress therein; but the study of mathematics is one which peculiarly lends itself to mechanical application. In the study of the relation of mind to body, Descartes was not prepared to carry out his conception to its final consequences; since to do so would be to deny altogether the influence of the will upon our actions. Hence he formulated a theory that the mind can and may interfere in reflex actions, but that it possesses the power of pure thought in its own right. Locke, as a typically Brit. practical philosopher, denies the existence of *I. I.*, and asserts that all our knowledge comes from sense experience, the mind being only *tabula rasa*. Leibniz opposed this whole conception of images impressing themselves upon the blank mind from external objects as the basis of all our knowledge, though he agrees with Locke that, in point of time, sensations precede the relating activities of the mind. Locke practically ignores the reaction of the mind itself in knowledge; Leibniz deems this reaction the one essential thing.

But while we may admit that all truths come to our knowledge only through experience, there may still be certain truths which may properly be called innate. In other words, the vague concept 'experience' demands a closer, more subtle definition than Locke gave it, and this was supplied by later philosophers like Hume and Kant. Locke's criticism of *I. I.* has, indeed, no force against the theories of Ger. idealism; for, according to Kant, experience itself would be impossible unless it were possible for the mind to pass judgments transcending experience. With Kant, perception does not conform to the nature of objects, but the sensible object conforms to the constitution of our faculty of perception. Eng. philosophical thought is essentially utilitarian, and therefore opposed to the theory of *a priori* and innate truths—an attitude which explains the popularity in England, for a time, of the positivism of Comte or any other system of philosophy which seems to favour progress irrespective of the forces of tradition.

**Inner House**, see COURT OF SESSION.

**Inner Temple**, see INNS OF COURT.

**Innerleithen**, par. and burgh of Peebles, Scotland. The par. is intersected by the Leithen Water. There is a medicinal spring containing sodium and calcium chlorides. It is one of the centres of the Scottish woollen industry. Pop. 2300.

**Innes, James Dickson** (1887-1914), landscape painter, b. Llanelli in Carmarthen, of Catalan descent on his mother's side. He studied art at the Slade School, and exhibited chiefly at the New Eng. Art Club. His earlier landscapes were painted in S. Wales, often in company with Augustus John, and his later on the Mediterranean slopes of the Pyrenees. His ability and originality exercised a strong influence on the work of his younger contemporaries.

**Innes, Michael**, see STEWART, JOHN INNES MACKINTOSH.

**Inness, George** (1825-94), Amer. landscape painter, highly esteemed for his individual interpretation of light and atmosphere; b. Newburg, New York. He studied in America, but travelled in Europe, where he admired the Barbizon painters, Daubigny and Rousseau. Among his works are 'Autumn Gold,' 'Under the Greenwood,' 'Passing Storm,' and 'Moon-rise.'

**Innisearra**, vil. in co. Cork, Rep. of Ireland, the centre of the R. Lee (q.v.) hydro-electric scheme.

**Innisfail**, tn of Queensland, Australia, on the Johnstone R., 989 m. N. of Brisbane, in the heaviest rainfall belt of Australia with an ann. average of 140 in. It is the centre of a sugar-cane growing dist.; other industries are timber, dairying, and pastoral (cattle). Pop. 6840.

**Innisfail**, used in poetry as a synonym for Ireland, and means 'the island of the Fair.' The 'Fair' or 'Lia-fail' is the stone which, since 1296, when Edward I carried it off from Scone (q.v.), has rested under the coronation chair in Westminster Abbey. Legend tells that it was on this stone that

Jacob fell asleep when he dreamt of the flight of stairs reaching to heaven, and that the Dedannans carried it to Ireland and set it up as the 'inauguration' stone at Tara (q.v.). See CORONATION.

**Innisfree** (Inishfree), see SLIGO.

**Innishannon**, vil. in S. co. Cork, Rep. of Ireland, on Bandon R. It has excellent angling, and remains of castles in vicinity.

**Inniskilling Fusiliers**, The Royal, raised in 1689 from the forces which defended Enniskillen for William III. The 1st and 2nd battalions were respectively the 27th and 108th regiments of Foot. The regiment fought at the Boyne and siege of Limerick, in the 1715 rebellion in Scotland, and at Culloden, 1746. After the Malda campaign it went to the Peninsula, then to Waterloo. It took part in 2 S. African campaigns before going to India for the mutiny. During the First World War it fought in France, Flanders, Macedonia, Gallipoli, Egypt, and Palestine. After the First World War it was reduced to 1 battalion, and linked with the Royal Irish Fusiliers (q.v.) to form 1 corps. A second battalion was again formed in 1937. During the Second World War, battalions served in France in 1940, Burma, N. Africa, and Italy. See *The Royal Inniskilling Fusiliers; being a history of the Regiment*, 1928.

**Innocent**, name of 13 popes, of whom the following deserve particular mention:

**Innocent III** (1198-1216), successor of Celestine III. The power of the Holy See reached its zenith during his pontificate, of which the following are the most outstanding: the launching of the fourth crusade (1202), the rise of the mendicant orders, the beginning of the Albigensian crusade (1209), and the Fourth Lateran Council (1215). I. was a zealous advocate of ecclesiastical reform.

**Innocent IV** (1243-54), successor of Celestine IV. Through the Council of Lyons (1245) he excommunicated and deposed the Emperor Frederick II, decreed the revival of the crusades, and affirmed the authority of the popes in language even more unequivocal than that of Innocent III. In his Bull *Ad extirpenda* (1252) he authorised and controlled the use of torture by the Inquisition. He was the first pope to confer upon his legates a red hat, which was gradually adopted by all cardinals.

**Innocent X** (1644-55), successor of Urban VIII. He is chiefly remembered for his condemnation of Jansenism (q.v.) in 1653.

**Innocent XI** (1676-89), successor of Clement X. He successively withstood the Gallican claims of Louis XIV, and encouraged John Sobieski, King of Poland, in his campaign against the Turks. Beatified 1956.

See POPES, LIST OF THE.

**Innocents' Day**, Holy, Eng. name for the festival celebrated 28 Dec., in commemoration of the massacre of the children of Bethlehem by Herod. It was probably first celebrated towards the end of the 5th or early part of the 6th cent. In the Lat. Church mass is said in

purple vestments, probably because the Innocents 'did not enter heaven till Christ at His Ascension opened it to those who believe.' In the Gk Church the feast is celebrated on 29 Dec., being known as the Feast of the 14,000 Holy Children. Also known as Childermas (q.v.).

**Inns and Innkeepers**. Premises formerly known as inns are now designated hotels by the Hotel Proprietors Act, 1956 (see HOTEL). The word 'inn' in this context has a special meaning differing somewhat from that in common use. It denotes a place at which any respectable traveller has a right to refreshment and sleeping accommodation, subject to his willingness to pay the prices charged. The innkeeper has a duty to supply them and cannot refuse without proper excuse; the travellers' demands must, however, be reasonable, as the innkeeper can only be expected to provide what he has available. To constitute any premises as an inn, the innkeeper must 'hold out' that he undertakes such a duty. It is not necessary that an inn should be licensed for the sale of intoxicants, as a temperance hotel could be an inn. Some licensed premises might not be inns, as, for example, a public-house where the publican did not 'hold out' that he would cater for all travellers.

The common law liability of innkeepers was originally so wide that a guest could recover damages for loss of his property in every case where the innkeeper could not prove the guest negligent. To protect innkeepers from frauds on them, their liability to guests was limited by the Innkeepers Liability Act, 1863, to £30, except where the property was lost as the result of the default or wilful neglect of the innkeeper or his servant, where the property had been deposited for safe custody, or where the property consisted of a horse or other live animal, or a vehicle. This Act was repealed by the Hotel Proprietors Act, 1956.

**Inns of Court**, Gray's Inn, Lincoln's Inn, Middle Temple, and Inner Temple. To become a member of the Eng. Bar it is necessary, besides passing certain examinations in law, to be admitted as a member of and to keep 12 terms (extending over a period of 3 years) at an Inn of Court. The I. of C. are a kind of legal univ. of London, in which the barristers and students correspond respectively to graduates and undergraduates. There were formerly a number of small inns, such as New Inn, Staple Inn, and Clifford's Inn; all of those have either been bought up or in some other way acquired by the 4 remaining I. of C. With the dissolution of the sergeants' inns disappeared the ancient status of 'serjeant,' commemorated in the humorous characters of Serjeants Buzfuz and Snubbin in the *Pickwick Papers*. All the existing I. of C. are corporate bodies owning (prior to the First World War) valuable property, and appointing from time to time 'benchers' out of their own members to form the executive bodies of the societies. Twenty benches, 5 from each inn, co-opted from time to time, form the Council of Legal

**Education.** The benchers may disbar a barrister for professional or other serious misconduct. Intending equity and chancery practitioners usually join Lincoln's Inn, the 2 Temple Inns being the best for common law business. Gray's Inn apparently offers the best scope for scholarships and students' prizes. A time-honoured feature of the I. of C. is the keeping terms, not by residence or attendance at lectures, but by 'eating dinners' in the halls, the total number being 6 of each term; but there are certain exemptions; studentship and first-class honours men gaining a remission of 2 terms, and univ. men need only dine on 3 nights each term. See also **LEGAL EDUCATION**.

Disastrous damage was done to property in the I. of C. by Ger. air raids on London (1940-1).

See S. Ireland, *Picturesque Views: an Historical Account of the Inns of Court*, 1800; J. B. Williamson, *The History of the Temple*, London, 1924; E. Williams, *Early Holborn in the Legal Quarter of London*, 1927; G. B. Hurst, *Short History of Lincoln's Inn*, 1946; W. Kent, *Lost Treasures of London*, 1947; W. V. Ball, *Lincoln's Inn, History*, 1947; E. A. P. Hart, *Hall of the Inner Temple*, 1952.

**Innsbruck** ('Inn bridge'), Austrian tn, cap. of the prov. of Tirol, on the Inn. It is at the junction of the roads over the Brenner and Arlberg passes (qq.v.). In the Middle Ages it was an imperial residence; the palace of Maximilian I (whose famous burial monument is in the Franciscan church) was renovated by Maria Theresa (q.v.) in Rococo. There are many fine churches and mansions, and streets of curious old houses. The univ. was founded in 1689. The tn is surrounded by mts, and is a centre for climbers and tourists. It is the commercial centre of W. Austria, and has textile and glass manufs. Pop. 95,100.

**Innuendo**, in the law of libel and slander, means that the words or gestures complained of although not defamatory in their ordinary or natural meaning are, in certain circumstances, capable of an alternative construction which amounts to a libel or slander.

**Innuendo** (Lat. *innuere*, to nod), figure of speech in which meaning is conveyed by a hint, as in Mark Twain's observation, 'The principal difference between a cat and a lion is that a cat has only nine lives.' See also **FIGURE OF SPEECH**.

**Innuet**, see **ESKIMO**.

**Inoculation**, communication of disease accidentally or intentionally to a healthy subject by the introduction of certain products of disease into the body through the skin or the mucous membrane. The chief diseases so transmitted in man are anthrax, hydrophobia, smallpox, and syphilis. Before Jenner (q.v.) introduced vaccination (q.v.), I. of smallpox was practised. The disease as thus transmitted was far less dangerous than the ordinary smallpox, and, further, rendered the inoculated subject much less liable to a future attack. Its disadvantages are obvious, in that it tended to keep the disease alive, and

further to increase its spread, but it was invaluable to those who had been inoculated, and was of great service prior to Jenner's discovery. In 1840 the practice of I. with smallpox was forbidden by law.

**İnönü, İsmet** (1881- ), Turkish soldier and statesman, and second President of the Turkish Rep. After distinguishing himself as a staff officer during the First World War, he became Atatürk's (q.v.) chief-of-staff in the Nationalist resistance movement and later (1924) Prime Minister of the rep., an office which he retained until he succeeded Atatürk as president in 1938. He was succeeded as president in 1950 by the present incumbent, Celal Bayar.

**Inorganic Chemistry**, see **CHEMISTRY**.

**Inosite**, or **Hexahydroxycyclohexane** ( $C_6H_{12}(OH)_6$ ), sweet crystalline substance, melting at 253° C., that is found widely distributed in the animal and vegetable organisms, especially in cereal brans and seeds. Little is known about its specific function.

**Inowroclaw** (Ger. *Hohensalza*), tn of Poland, in Bydgoszcz prov., 28 m. SSE. of Bydgoszcz (q.v.). It went to Prussia in 1772, but was returned to Poland in 1919. There was only minor damage during the Second World War. It is a spa, and has engineering, glass, sugar, and brass industries. Salt and gypsum are mined in the dist. Pop. 40,000.

**Inquest**, see **CORONER**.

**Inquisition** (Fr. *inquisition*; Lat. *inquisitio*, a seeking or searching for). In ordinary language, particular inquiry, search stimulated by curiosity or hidden motives. In law (1) a judicial investigation, inquiry, examination, an inquest; (2) the verdict of a petty jury under a writ of inquiry. 'An inquisition of office is the act of a jury summoned by the proper officer to inquire of matters relating to the crown, upon evidence laid before them' (Blackstone, *Comment.*, Bk 4, Ch. XXIII). The institution known as the I was an eccles. tribunal first outlined at the synod of Toulouse in 1229, and estab. by Pope Gregory IX after the conquest of the Albigenses in 1233. A committee consisting of sev. respectable laymen and the parish priest was ordered to be set up in every parish to search for and bring heretics before the bishops. Soon afterwards inquisitors were specially appointed by the Pope from the Dominican and other orders, but these did not supersede the bishops' courts. Persons accused of heresy were examined privately, and if sufficient evidence was found against them they became liable to eccles. penalties. If they remained impenitent the severest eccles. penalty, viz. excommunication, was pronounced against them and they were handed over to the civil authority for capital punishment. The eccles. penalties ranged from the enjoining of certain good works (e.g. almsgiving) to imprisonment for life. Informers' names were kept secret; torture was used to extract confession, while the death penalty usually took the form of burning. The I. was set up in Italy, Spain and its dependencies,

Portugal, and France, but not in England, where heretics were tried by the ordinary tribunals. It flourished chiefly in Spain, owing to the numbers of Jews and Mohammedans settled there, who, while outwardly conforming to avoid persecution, practised their own religion in secret and plotted extensively against the unity and safety of Christendom. According to Peschel's calculations about 2000 persons suffered death between 1481 and 1504 when Isabella *d.* This was the period of the Grand Inquisitor Torquemada (1481-98). The Sp. I. was suppressed by Napoleon in 1808, revived by Ferdinand VII in 1814, and was finally abolished by the Cortes in 1834. In France it was used by Philip le Bel for the suppression of the Knights Templars, but soon fell into disuse. In modern times the I. in Rome is called the Holy Office, and is composed of cardinals, judges, consultants, and other officials, under the presidency of the Pope, but its activities are confined to the censorship of books and matters relating to church law and eccles. offences. Death was regarded as the penalty for heresy by Catholics and Protestants alike in the 16th cent., but the Sp. I. has come to be regarded almost as a synonym for religious bigotry coupled with gross inhumanity.

**Insanity**, unsoundness of mind. It is hardly possible to provide a satisfactory definition of I., as it includes many widely differing states of body and mind, and excludes many forms of aberration which are associated with more or less transient diseases. When any injury is sustained by the cortex of the brain, or when poisonous matters are carried to it by the blood stream, clinical experience tells us that a disturbance of consciousness occurs. The delirium of the fever patient is due to his brain being temporarily poisoned, and a number of cases of more permanent forms of I. can be traced to definite lesions of the brain. Such conditions are often accompanied by purely physical symptoms, so that the hypothesis that I. depends ultimately upon physical causes is not altogether unjustifiable.

**CAUSES OF INSANITY.** Mental defect or disease is associated with some inherited or acquired peculiarity of brain constitution. If statistics be of any value at all, the relation of I. to hereditary nervous weakness is well estab. The descendant of insane parents may be normal, and even extraordinarily capable, but there is great likelihood of some indications of want of nervous balance showing themselves, and his general condition may be represented as a susceptibility to invasion by the agents that produce mental instability, just as a child of consumptive parents, though apparently healthy, is assumed to be less likely than others to resist invasion by the tubercle bacillus if he allows the conditions to become favourable for its development. Among other general causes of I. may be mentioned the increasing stress of civilised life. There is a fear that I. is increasing rapidly among civilised nations, and although statistics do not show that any real increase has

taken place, there undoubtedly is a greater tendency to nervous diseases which demonstrates that the nervous mechanism is being over-wrought in a number of cases. The belief that there is a relation between the stress of modern life and the incidence of mental disorder was apparently confirmed by the great increase of mental disorders during the First World War, particularly among soldiers. The general body of expert opinion, however, inclines to the view that the conditions of warfare were the occasion, rather than the cause, of the 'war shock' (traumatic neurosis). The report of the Board of Control for 1930 (pub. in 1931) comments on the continued increase in lunacy, the number of notified insane persons under care in England and Wales showing, in the 6 years under review, an average ann. increase of about 2000. But the Board found no justification for the suggestion so commonly made that the pace of modern life conducted to mental breakdown, though present-day conditions of urban life might, and probably do, tend to increase the frequency of some minor nervous disorders. Opinion as to the place of alcoholism in the causation of I. is divided. So many cases show a hist. of alcoholism, and its effects on the nervous system are so pronounced, that many claim alcohol to be the commonest cause of I. On the other hand, the cause may be confused with the effect; the lack of control which makes the confirmed drunkard is a characteristic symptom of an unsound mental constitution. Consanguinity, or marriage of near relations, is adduced as another cause. Here, again, the probability is that if the parental hist. is free from I., there is no particular tendency in that direction in the offspring. Mental feebleness is perpetuated in many of our vils. by the intermarriage of related persons with a hist. of mental deficiency; such persons are often responsible for much larger families than the average. The immediate cause of I. may be toxic poisoning through defective metabolism or through actual infection by micro-organisms. Such forms of I. as follow certain fevers, as influenza, puerperal fever, or syphilitic infection, are undoubtedly due to the presence of toxic substances in the blood. It has been further suggested that worry, violent emotion, etc., by their effect on metabolism induce changes in the blood which may ultimately cause a physical condition of the brain involving I.

**General symptoms.** Of the mental symptoms the most definite are persistent delusions or hallucinations. A delusion is a false idea, as when a patient fancies he is some great personage, or that there is a conspiracy against his life; a hallucination is false perception, as when a patient sees visions or hears voices which have no foundation in reality. It must not be thought that all insane persons suffer either from delusions or hallucinations of a definite type. Mental instability shows itself in extreme impulsiveness in action, leading sometimes to sudden

attempts at suicide. In some forms of I. it is almost impossible to keep the patient's attention for more than a few seconds: he is at the mercy of every chance impression. On the other hand, some patients cannot be roused out of an obstinate introspection. Memory is often disturbed, being either abolished or restricted to remote events. Of bodily symptoms the most characteristic is sleeplessness, and the recurrence of the habit of sleep is generally a sign of improvement. A rapid pulse rate and general lack of control of muscles are usually to be found in most types of I.

**CLASSIFICATION.** There is no universally accepted classification of the types of I., but the following outline of a simple scheme (Henderson and Gillespie) is similar to that adopted by the Royal College of Physicians (England) in its Nomenclature of Diseases:

1. *Affective reaction types:* (a) Manic Depressive; (b) Involutional Melancholia.
2. *Schizophrenic reaction types.*
3. *Paranoiac and Paranoid reaction types:* (a) Paranoiac; (b) Paraphrenia; (c) Paranoid states (with or without hallucinations).
4. *Epilepsy.*
5. *Mental deficiency:* (a) Idiocy; (b) Imbecility; (c) Feeble-mindedness.
6. *Organic reaction types:* (a) Acute (Delirium); (b) Chronic.
7. *Unclassified:* e.g. some cases of folie à deux.

The *Organic reaction types* are subdivided as follows: (1) Psychoses with toxins: (a) Endogenous (Uraemia, Eclampsia, etc.) (b) Exogenous (alcohol, opium, metals, gases, etc.). (2) Psychoses with infections: (a) General; (b) Local brain infections, comprising: Syphilis, (General Paralysis, Cerebral Syphilis, and Tabes); Encephalitis; Meningitis (tubercular, meningococcal, etc.); and Abscesses. (3) Psychoses with primary degenerative brain changes. (4) Psychoses with general metabolic deficiency: (a) Polylagra; (b) Myxoedema; (c) Cretinism. (5) Psychoses with brain trauma. (6) Psychoses with organic brain diseases, e.g. brain tumour. (7) Psychoses with chronic general diseases, e.g. cardio-renal disease, pernicious anaemia, etc.

The term *Manic Depressive Psychosis* is now applied to disorders of affect, either elation or depression, which were formerly termed Mania and Melancholia in the belief that they were quite separate diseases. The characteristic symptoms of Mania are press of speech and activity, flight of ideas, and a state of 'causeless' elation, i.e. without any justifiable cause either in the conscious content or in the external circumstances. In addition, suspicion, irritability, a clouding of consciousness, disorientation, delusions, and hallucinations may all be present for a time, particularly at the height of the illness. The onset is usually acute and the bodily

indications are restlessness, insomnia, and loss of weight.

Melancholia is characterised by persistent depression. The patient is miserable, introverted, solitary, and retarded. Hallucinations and delusions (usually hypochondriacal, self-accusatory, or persecutory) may be present. The most important consideration from the point of view of care and treatment is the danger of suicide.

*Involutional melancholia* is a term, which, in its strictest application, is reserved for a group of cases of both sexes occurring at the involutional period, who have never previously suffered from any form of mental illness. Its features are depression without retardation, anxiety, a feeling of unreality and hypochondriacal and nihilistic delusions.

*Paranoia* is a chronic form of mental disease which has an insidious onset and is characterised by delusions, which are closely related, unchangeable, and bound up together into a system. The term Systematised Delusional I. is sometimes given to Paranoia and distinguishes this psychosis from other mental diseases in which the delusions are multiple, variable, and unsystematised. Delusions may be of grandeur and power or of persecution or jealousy. When delusions of persecution are present, there is considerable danger of violence as the patient may attack his supposed persecutors or attempt suicide to escape from them. *Schizophrenia* is a psychosis which occurs most typically in adolescents and young adults and is characterised by emotional apathy, absorption in phantasy to the exclusion of normal social activities, by delusions and hallucinations, and a deterioration in mental efficiency which may terminate in severe dementia. In its typical form it consists in a slow, steady deterioration of the entire personality and manifests itself in disorder of feeling, conduct, and thought and in an increasing inability to make effective contact with reality. Four varieties have been described: (1) Simple. (2) Hebephrenic. (3) Katatonic. (4) Dementia paranoidea. *Paraphrenia* is a progressive delusional condition, accompanied by hallucinations of various senses and, in due course, by a varying degree of mental deterioration. The condition has been said to lie midway between dementia paranoidea and paranoia in the age of onset and the severity of its symptoms. *General paralysis of the insane* is an inflammatory and degenerative disease of the brain of syphilitic causation, which is characterised by progressive mental deterioration and definite physical signs and serological findings. It usually manifests itself from 5 to 20 years after infection, but a few cases have been recorded where the disease made its first appearance 30 or more years after infection. It is commoner in males than in females, develops insidiously, and its course is frequently marked by remissions. The earliest signs are usually changes in the patient's personality (changes in behaviour, character, and mood) of which the



patient is commonly unaware. There is increasing disorientation, particularly for time, and progressive impairment of memory. A feeling of euphoria, coupled with grandiose delusions of bizarre type may be present or the patient may exhibit intense depression, even amounting to stupor and mutism. In the depressed type the ideas expressed are frequently absurdly nihilistic and grotesque. In the terminal stage of dementia the patient leads a purely vegetative existence. The disease is world wide and its appalling social significance cannot be overstressed. Syphilis transmitted to the offspring may give rise to juvenile general paralysis.

**TREATMENT.** Studies of mental disorder carried out in connection with hypnotism led to the attempt to use suggestion, and persistent suggestion still plays a great part in the treatment of mental patients. Progress towards an understanding of the true character of mental disorder resulted in the realisation that the insane man was a sick man, in need of care and supervision in place of discipline (or, as in former times, punishment) and restraint. A welcome change appears to have taken place in the attitude of the general public towards 'nervous' and mental disease. There is an increased readiness to seek expert advice and treatment early, and the old fear of social stigma appears to be almost eliminated. Probably more than any other single factor, the extensive use of psychiatry in the 3 services during the Second World War contributed to this desirable development. For the first time psychiatry in the services was fully organised and developed. Special hospitals for the treatment of neurosis and psychosis were estab. both at home and overseas. At home psychiatrists were attached to the various military hospitals, area psychiatrists worked in each command, military prisons were visited, and psychiatric opinion and advice made available at officer selection boards, intake centres, courts martial, etc. Overseas the work was often carried out in the extreme forward areas. The result was that in the services large numbers of the medical profession and an immense cross-section of the general pop. became familiar with the aims, uses, methods, and benefits of psychiatry, and after their return to civilian life they were not slow to take practical advantage of this knowledge. Further, the experience gained in the organisation of war psychiatry proved of great value in organising the extension and elaboration of civilian psychiatry which took place after the end of the war. The modern mental hospital provides its inmates with as great a measure of freedom as possible, and with great variety of occupation.

Besides rest and occupation therapy special methods of treatment have recently been introduced, which have yielded valuable results. The methods of treatment now in use include (1) Insulin therapy, (2) Cardiazol therapy, (3) Electric convulsion therapy, (4) Prefrontal leu-

cotomy, (5) Continuous narcosis, and (6) Narco-Analysis. Insulin therapy, which involves the production of a hypoglycaemia by means of insulin, has proved especially valuable in schizophrenia, particularly in young patients treated early in the disease. Cardiazol also has yielded good results in certain cases. With electric convulsion therapy the best results have been obtained in depressions, including involuntional melancholia. This treatment, which can be given as an outpatient procedure, is now practised at the psychiatric clinics at most large general hospitals. The operation of prefrontal leucotomy involves the severance of the association paths between the frontal lobes and the thalamus. The general aim of the operation is to modify the disordered behaviour of those psychotic patients whose illness has been of prolonged type. Generally speaking, the possibility of serious and permanent damage to the mental functions renders it advisable to reserve the method for cases where all other suitable methods have been tried and failed, where there is no reasonable hope of spontaneous recovery, and where the patient is quite incapable of useful occupation or a modest enjoyment of life. Modern practice involves the attempt on the part of the medical man to understand his patient, and to learn, through the discovery of the purposive character of his symptoms, obsessions, and delusions, the real character of the inner conflict which they simultaneously express and conceal (cf. the psychological teaching of Freud and his followers). There is still a difference of opinion as to whether there is a distinct break between the neuroses or 'nervous' diseases, and the psychoses or I. proper; or whether the psychoses which are not due to actual lesions are merely developments of the neuroses. According to some writers, there is a fundamental difference between the two, though it is admitted that in the early stages of dementia praecox, manic depressive insanity, paraphrenias, etc., diagnosis is very difficult, and patients who are really insane may be regarded as merely neurotic. On the other hand, it is indisputable that many patients who were diagnosed as insane have been considerably benefited by psychoanalytic treatment, and some have even been cured. These differences of opinion, however, have not stood in the way of the general acceptance of the view that mental disorder of any kind calls for psychological understanding and psychological treatment. The psychological study of abnormal mental functioning has developed into a specialised branch of medical science, under the name of psychiatry (q.v.).

**DETENTION OF INSANE PERSONS.** See LUNACY ACTS.

**INSANITY AND CRIMINAL RESPONSIBILITY.** It is a fundamental presumption of Eng. law that every person of the age of discretion is sane and accountable for his actions until the contrary is proved. The burden of proving the incapacity or mental

defect is placed on the prisoner, and it is for the jury to determine, as a question of fact, whether the defence have proved that the prisoner was insane at the time when he committed the crime. The tests to be applied by the jury were formulated over a cent. ago in consequence of a plea of *I. raised* in the case of *R. v. McNaughten* (1843). The rules formulated by the judges to whom the House of Lords addressed a series of questions on the law of *I.* laid down 4 propositions which could be used as a guide where *I.* is pleaded and which can be summarised: (i) the fact that a person who knows that he is acting contrary to law, does so under an insane delusion or revenge, or a delusion that his act is a benefit to the public, is no defence if that person, even though partially deranged, knows that he is doing something unlawful at the time of the commission of the act; (ii) the test of *I.*, which ought to be submitted to the jury, as a direction from the judge on the law, was held to be that: 'To establish defence on the ground of insanity, it must be clearly proved that at the time of committing the act the party accused was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing, or, if he did know it, that he did not know that he was doing wrong'; (iii) if a person is under a delusion as to the facts which existed at the time of his wrongful act, but is not otherwise insane, his liability for those acts must be considered on the basis of his liability had those circumstances been real; (iv) a medical man who has been present throughout the trial cannot properly be asked his opinion of the state of the accused's mind at the time of the commission of an alleged crime, as this would be usurping the question which it was for the jury to decide; but it might be convenient to allow such a question where the facts are not in issue and the question is substantially on a matter of science.

Section 2 of the Homicide Act, 1957, supplements the M'Naughton rules by providing the defence of diminished responsibility in murder cases. The accused must satisfy the jury that at the time of the crime he was suffering from such an abnormality of mind as substantially to impair his mental responsibility for his act. The abnormality of mind must have arisen from some arrested or retarded development of mind or any inherent cause or have been induced by disease or injury. A mere outburst of temper would not suffice.

These rules have long been subject to criticism by legal and medical writers. The non-acceptance by the law of the defence of uncontrollable impulse (for example) in cases of shoplifting where a person is clearly suffering from kleptomania, but still knows that he is doing something wrong, has often been strongly attacked by eminent members of the medical profession. Similarly the law has not yet accepted a defence of moral *I.* where the intellectual faculties are sound, and where there is knowledge of the acts

performed, but the moral appreciation is diseased or affected. Moral inebility is, however, recognised under the Mental Deficiency Acts, 1913 and 1927. Where a person is mentally defective, and has vicious or criminal propensities which have existed before the age of 18, the court has power to order confinement in an institution or place for defectives under the care of a guardian. Moral deficiency or sadistic or sexual perversion do not fall within the rules of M'Naughten's case unless the person either does not know what he is doing or does not know that what he is doing is wrong, and they do not form good grounds for a defence of *I.* The defence of *I.* in answer to a criminal charge is one of general application, and is not confined to cases of murder. It is, however, rarely pleaded as a defence to charges of less gravity because of the consequences of a verdict of 'Guilty but insane,' for a finding of this special verdict entails an order that the accused be kept in custody during Her Majesty's pleasure. See also CRIMINAL LAW; LUNACY; MENTAL DEFICIENCY ACTS; PSYCHOSIS.

See B. Hart, *The Psychology of Insanity*, 1912; J. C. Goodwin, *Insanity and the Criminal*, 1923; J. MacCurdy, *The Psychology of Emotion*, 1925; W. McDougall, *Outline of Abnormal Psychology*, 1928; S. Thalbitzer, *Emotion and Insanity*, 1928; A. Bjerre, *The Psychology of Murder*, 1927; R. G. Gordon, *The Neurotic Personality*, 1927; A. J. Rosanoff, *Manual of Psychiatry*, 1929; Isabel Hulton, *Mental Disorders in Modern Life*, 1940; R. D. Gillespie and D. K. Henderson, *A Text-book of Psychiatry*, 1944; C. P. Blacker, *Neurosis and the Mental Health Services*, 1946.

Inscribed Stock, see REGISTERED STOCK. Inscriptions (from Lat. *in*, 'upon,' and *scribere*, 'to write') is the term given to records cut, engraved, or moulded upon hard material such as stone, metal, or clay. They are found on rocks, on slabs of stone, on temples, tombs, or anct buildings, on vases, seals, or gems, on copper plates, on iron or bronze tablets, on gold, silver, brass, crystals, ivory, and so forth. In the Bible there are numerous references to writing on stone: the 'tablets,' on which Moses received and afterwards rewrote the Law on Mt Sinai, were slabs of stone (Exod. xxxi. 18 and xxxiv. 1), and in Deut. xxvii. 2-3 Moses was bidden to 'set up great stones and plaster them with plaster' that they might have a surface capable of taking a legible text of the Law; also Joshua 'wrote upon the stones a copy of the Law of Moses' (Joshua viii. 32). Clay was the most common writing material among the anct Mesopotamian peoples (see CUNEIFORM WRITING) and was also used in Syria (at Ras Shamra, the anct Ugarit, a particular cuneiform script was employed) and in Crete, where many thousands of clay tablets have been unearthed, as well as in some other Near E. countries. Bronze was used by Greeks, Etruscans, and Romans as a material on which to engrave votive *I.*, laws, treaties,

and other solemn documents. The earliest extant Chinese written documents are either on bronze or on bones. The most noteworthy characteristic of the 'pre-historic' Indus valley culture (q.v.), in the middle of the third millennium BC, is the still undeciphered script preserved in about 800 finely cut seals of stone or copper. India, and especially S. India, is particularly rich in I. of all kinds. The importance of the S. Semitic I. can be gauged when we consider that practically all we know of early S. Arabian hist., and that of pre-Islamic N. Arabia, is based upon them. Indeed these numerous S. and N. Arabian I. are our main source for the study of the once flourishing kingdoms whose splendour has been immortalised by the biblical account of Solomon and the Queen of Sheba. Also the numerous inscribed stelae and stone 'altars' and the inscribed polychrome clay pottery of the anct Mayas (Central America), as well as the wooden tablets of Easter Is., inscribed in a 'mysterious' script, may be mentioned.

Until the end of the 19th cent., when people spoke of 'ancient history' they usually meant the hist. of anct Greece and Rome; it was thought that nothing could be known about the earlier times except what is found in the pages of the Bible. In the early 19th cent. very little was known about the early Near E., the cradle of our W. civilisation. The general reader hardly realises that during the last cent. the vistas of space and time visible to the eye of man have been wonderfully extended owing largely to the discovery and the decipherment of numerous I. The civilisations of Egypt, Mesopotamia, Indus valley, Syria, Asia Minor, Arabia, Crete, etc., previously entirely unknown, or at best known only from the facts transmitted through the Bible or Graeco-Rom. writers, have been brought into the full light of hist. Scores of scripts and languages, some of which are not connected with any surviving tongue, have been deciphered; grammars and dictionaries of previously unknown languages have been written; and many aspects of historical cultures have been constructed only on the basis of I. For example, we know vastly more about the reign of Hammurabi of Babylonia, 18th cent. BC, than we know about the reign of King Alfred of England.

See also ALPHABET; CUNEIFORM WRITING; ETRUSCAN LANGUAGE AND WRITING; GREEK LANGUAGE; HEBREW LANGUAGE, WRITING, AND LITERATURE; HIEROGLYPHIC, HIERATIC, AND DEMOTIC WRITINGS; HITTITES; LATIN LANGUAGE AND LITERATURE; OGHAM; PAHLAVI; RUNES; WRITING.

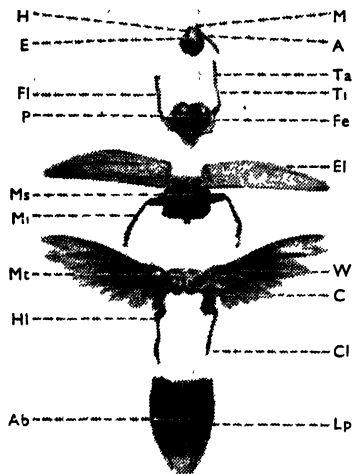
See *Corpus Inscriptionum Graecarum* (4 vols.), Berlin, 1825-77, and its successor, *Inscriptiones Graecae* (14 vols.), Berlin; *Corpus Inscriptionum Latinarum*, Berlin, 1862; *Corpus Inscriptionum Indicarum*, Calcutta and Oxford, 1877f.; *Corpus Inscriptionum Semiticarum*, Paris, 1885 f.; *Corpus Inscriptionum Etruscarum*, Leipzig, 1893 f. For cuneiform I. see

W. Wright, *Facsimiles of Manuscripts and Inscriptions*, 1875-83; D. A. Chivolson, *Corpus Inscriptionum Hebraicarum*, St Petersburg, 1882; E. Hühner, *Monumenta Linguae Ibericae*, Berlin, 1893; *Corpus Inscriptionum Hittiticarum*, Berlin, 1900 and 1906; *Epigraphia Zeylanica*, Oxford, 1904; A. J. Evans, *Scripta Minora*, 1909, and *The Palace of Minos at Knossos* (5 vols.), 1921-35; *Hieroglyphic Texts from Egyptian Stelae*, etc., in the *British Museum*, 1911-14; *Epigraphia Birmanica*, Rangoon, 1919; S. G. Morley, *The Inscriptions at Copan*, 1920, and *The Inscriptions of Peten* (5 vols.), Washington, 1938; *Hittite Texts in the Cuneiform Character* (Brit. Museum), 1920 f.; G. Coedès, *Recueil des inscriptions du Siam*, Bangkok, 1924 f.; E. A. Wallis Budge, *The Rise and Progress of Assyriology*, 1925; *Corpus Inscriptionum Etruscarum*, Leipzig, 1926 f.; *Corpus Inscriptionum Chaldeicarum*, Berlin and Leipzig, 1928 f.; D. Diringer, *Le iscrizioni antichebraiche*, Florence, 1934. For bibliography on runic I. see H. Arntz, *Handbuch der Runenkunde*, Halle, 1935, and R. A. S. Macalister, *Corpus Inscriptionum Insularum Celticarum* (vol. i), Dublin, 1945.

**Insect**, member of the invertebrate group of Arthropoda. There are over half a million species known to-day, and the likelihood is that entomology will reveal many thousands more. Thus I. are by far the largest class of animals, and can further claim a very remote ancestry, as the Lower Silurian rocks in the earliest ages known to geologists bear distinct traces of them. A typical I. stands considerably higher in the biological scale than Peripatus or Myriapoda. Its body is enveloped in a horny substance called chitin, and is structurally composed of 3 divs., which are frequently so narrowly united that the I. seems cut up into 3 parts—a phenomenon which has given the class its name (*insectus*, Lat. 'cut into'). These 3 divs. are the head, thorax, and abdomen. The adult I. usually has wings and these are attached to the second and third segments of the thorax. Some I.s (the Diptera, or true flies) have, instead of the second pair of wings, small outgrowths, halteres, used for balancing. Beetles have the first pair represented by wing cases or elytra which protect the delicate flying wings. Two legs are present on each thoracic segment, whence an I. is called a Hexapod (6 legs). It breathes by means of air-tubes or tracheae, whence it ranks with other Tracheata.

**Anatomy of insects.** The head is made of sev. segments closely united. The mouth is situated at the front and on the under side, an upper lip (labrum) being usually present. The mouths of many I.s have 3 pairs of appendages (jaws), with which the I. procures and also masticates its food. There is also a pair of pre-oral outgrowths called feelers or antennae. Some adult I.s have 2 kinds of eyes: there are 2 compound eyes, which are set one on either side of the front of the head, and are made up of numerous 6-sided lensed facets; between these eyes

there may be present the simple-lensed eyes, called ocelli, which are often disposed in a group of three and are really only eye-points. A compound eye can be well studied in a house-fly. Larvae, that is, young I.s, have only ocelli. The thorax is made up of 3 segments, each provided with a pair of jointed legs on the lower surface. Two pairs of compressed dorsal sacs, that is (wings), are fastened to the



*F. Whitman Jones*

THE PARTS OF A TYPICAL INSECT:  
THE BEETLE

H, head; E, eye; M, mouth; A, antenna.

Fl, fore-leg; P, prothorax; Ta, tarsus; Ti, tibia; Fe, femur.

Ms, mesothorax; Mi, middle legs; Ei, elytron.

Mt, metathorax; HI, hind leg; W, wing; C, coxa; Cl, claws.

Ab, abdomen, showing segments; Lp, lateral plates of abdomen.

upper surface of the 2 hinder segments. In some species there is only a single pair of wings, whilst in others the second is still very undeveloped. The abdomen has no limbs, unless stings, pincers, and other weapons of offence, or ovipositors, be regarded as rudimentary limbs. This part of the trunk contains most of the organs. Appendages on the head are of 4 kinds. First, there are 2 antennae springing from the forehead. These are mainly jointed, thin, and long, and have many nerve-endings which make it probable that they serve as organs of touch, by which impressions are conveyed from one I. to another, and perhaps also as organs of smell. Secondly, there are the mandibles or biting and upper jaws, which in I.s with the masticatory type of mouth are

simply hard plates adapted for crushing and cutting. Below these are the anterior (1st) maxillae, or lower jaws, which are provided with jointed palps (that is, sense organs), and which often have quite a complex structure. The posterior (2nd) maxillae are the fourth pair of appendages. These also are complex and furnished with palps, and are, moreover, usually united at their base to form the labia. The mouth is formed of the mandibles and the 2 pairs of maxillae, and may be of the sucking or chewing type. Thus moths and butterflies have suctorial mouth arrangements, and whilst their mandibles are only slightly developed, their 1st maxillae have become probosces by being protracted into a spiral tube. The mouths of beetles are masticatory. The trunk appendages are the 3 pairs of legs already referred to. Each limb is divided into 5 parts, namely hip (coxa), trochanter, thigh (femur), shin (tibia), and foot (tarsus) with claws and pads at the extremity. Sometimes there are tarsal hairs and glands, which enable the I. to grip a smooth surface; the legs of a daddy-long-legs are lank and long, while the water boatman can swim with his, and other insects use theirs for making a noise.

**Skin and glands.** The chitinous cuticle or integument, which forms a kind of ensheathing skeleton, often bears bristles, tubercles, scales, or hairs the last of which may be tactile or olfactory. I.s are subject to moultings, since the cuticle itself cannot expand to allow for growth, and cast their whole skins many times before reaching their greatest size. The skin serves as a firm support for the highly developed muscles which work the wings, legs, trunk segments, and organs of the mouth and further control circulation and respiration. Bees, coccus I.s, etc., have wax glands near the bottom of the abdomen or on the back; a number of larvae, especially such as weave cocoons, have spinning glands opening near the mouth; bugs have odoriferous, and wasps and stinging ants poison glands, and few I.s are without salivary glands, which also open near the mouth.

**The nervous system** differs from that of vertebrates by having a ventral instead of a dorsal nerve cord and in being much simpler. The nerve centres, called 'ganglia,' which are simply masses of nervous matter, lie lengthwise along the lower part of the trunk and are connected together by a double chain of nerves. From each ganglion branch nerves are dispatched to different parts of the body, and in the extreme front is a larger pair of ganglia, usually called the 'brain.' From the 'brain' the 2 nerve chains, or cords, divide so as to encircle the gullet, after which they reunite. As regards their sense organs it is certain they have some of them more highly developed than those of human beings. I.s which visit flowers are wonderfully sensitive to fragrance and to colour, and it is largely by smell, it seems, that I.s recognise friends and foes. Some entomologists credit them with a sixth and dermatoptic sense, because their

skin seems able to appreciate minute differences of light and shade. I.s hear by means of nerve-endings, called tympanal and chordotonal organs, which lie on various parts of the body surface and greatly surpass human beings in their auditory faculties. Many, like ants and bees, which lead a social life, show signs of extraordinary powers of intelligence and ingenuity in adapting fresh means to compass a particular end. On the other hand, much of what appears to be their most intelligent behaviour is purely instinctive, and when this is interfered with, the insect is unable to adapt itself intelligently to the new situation.

The *circulatory system* centres round the dorsal blood-vessel, or heart, which lies lengthwise along the upper surface of the body, just below the chitinous casing, and which is a tube composed of segments with valves between. Behind, this tube is closed, but in front it is prolonged into a fine channel, the aorta. The blood, which is a colourless, pale green, red, or yellow fluid with amoeboid cells, is pumped out from the heart into the various tissues until a muscular contraction of the body forces the blood back into the heart. Lucunae, which have no definite walls, take the place of blood-vessels properly so-called. The blood, unlike that of vertebrates, takes no part in the transport of oxygen.

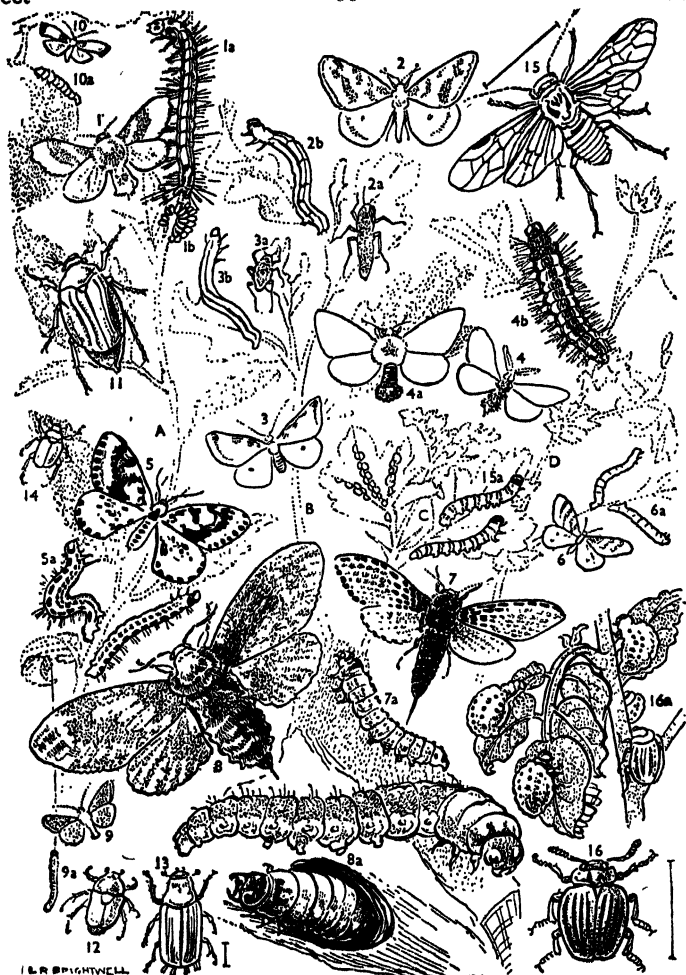
The *respiratory system* of I.s is remarkably efficient. Air-conducting tubes, called tracheae, are distributed net-wise all over the body, and open to the outer air by means of paired apertures called spiracles, or stigmata. There are usually 2 pairs in the thorax and 10 on the abdomen, but the number varies considerably. The spiracles are often protected by hairs. In water I.s lateral or terminal outgrowths, known as tracheal gills, replace the stigmata; the oxygen dissolved in the water can penetrate through their thin surfaces. The tracheae are ingrowths from the outer cuticle; they are lined with chitin, and appear silvery and glistening; the air is probably driven through them by muscular contractions, easily seen in the abdomen of a wasp, and continuing even when this part has been cut off from the rest of the body. By the development of spiral bands of strengthening material, the tracheae are prevented from collapsing, while the diffusion of oxygen through the thin parts of the walls into the surrounding tissues can proceed freely.

The *alimentary system* varies with different species and also to some extent with different diets. The alimentary canal, which passes from front to back usually with sev. loops on the way, may be divided into fore-, mid-, and hind-gut. Mouth, pharynx, and gullet compose the fore-gut; sometimes the gullet is swollen into a kind of crop, the honey stomach of the bee; sometimes it is prolonged into a gizzard with grinding plates to promote mastication, and sometimes it has a pouch called the sucking stomach. The fore- and hind-gut are lined with chitin; not so the mid-gut. This is a chyle or digestive and absorptive stomach, and leads

into the hind-gut or intestine which is often coiled and glandular; it is longer in I.s which take solid than in those which take liquid food. The intestine absorbs digested food, and the soluble waste products leave the body by means of a set of winding threads or tubes, the Malpighian tubules, which usually grow from its upper part. Solid waste products are excreted through the anus.

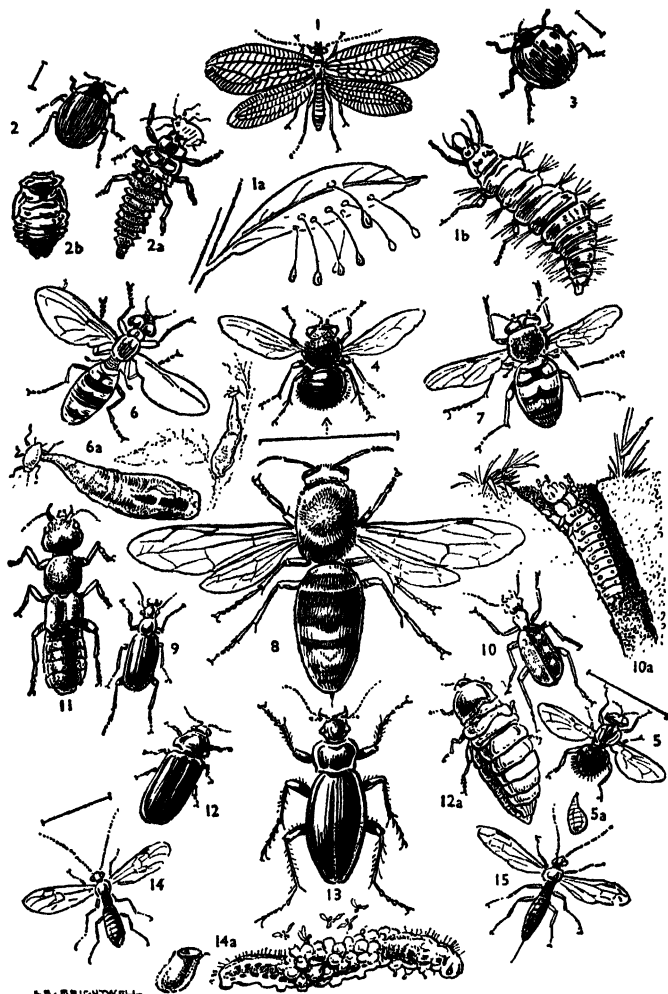
The *reproductive system* is represented by paired reproductive organs, the products passing out through paired ducts, the *vasa deferentia* of the male and the oviducts of the female. The sexes are quite distinct and differ in other points of structure as well as in reproductive organs. Thus the female of the butterfly *Oryia* has no wings, and among *Strepsiptera* (bee parasites) the female never leaves the grub stage. Males can store up spermatozoa in pockets, and similarly certain females, like the queen bee, can preserve for years the spermatozoa received from the male, so that she can continue to lay fertile eggs long after her last sexual union. She does this by means of an internal seminal storage vesicle, the spermatheca. Some females have a well-developed ovipositor at the end of the abdomen. Sexual selection is practised among I.s, a fact which has probably contributed towards more speedy evolution of strength and beauty. Sometimes the males fight for some feminine prize, whilst among bees and other I.s the wooing is quite an elaborate process, the female in this case choosing her mate. Some I.s are exceptionally fertile, as, for instance, the silk moth and queen bee; others, among them certain Aphides, are remarkable for parthenogenesis, or virgin birth, i.e. development of eggs without fertilisation, which sometimes occurs for a limited period only, and is afterwards followed by normal sexual reproduction. A hive of bees usually has only 1 perfectly mature female, the queen bee; the mass of females who carry on the work have an immature sexual development, and are therefore called 'neuters,' or workers.

*Metamorphosis* is a phenomenon common to the majority of I.s. However, among Collembola and Thysanura the young, which, as in most I.s, are hatched from the eggs of the mature female, differ from the adults only in point of size, and even among lice, locusts, cockroaches, and many bugs, the only distinction between the infant and parent is the immaturity of the reproductive organs and smaller wings in the infant. These species are therefore said to be 'ametabolic,' that is, not subject to change. Cicadas, Ephemerids, and dragon-flies, on the other hand, are classed as 'hemimetabolic,' being subject to partial change. Thus a larva of the cicadas lives on the ground and has anterior limbs suited to burrowing, whilst fully grown cicadas live among grass. The dragon-fly is winged and aerial, and breathes with open air-tubes, but its larva lives in the water, and has tracheal gills for respiration. But a large number of species, including house-flies, beetles, and



## INSECTS INJURIOUS TO TREES AND SHRUBS

1. Lackey Moth (*Malacosoma neustria*). 1a. Larva. 1b. Eggs, in ring round stem. 2. Mottled Umber Moth (*Hybernia defoliaria*). 2a. Wingless Female. 2b. Larvae. 3. March Moth (*Anisopteryx aescularia*). 3a. Female. 3b. Larva. 4. Brown Tail Moth (*Nygmia phaeorrhoca*). 4a. Female. 4b. Larvae. 5. Magpie Moth (*Abrazas grossularia*). 5a. Larva. 6. Winter Moth (*Cheimatobia brumata*). 6a. Larva. 7. Wood Leopard Moth (*Zeuzera pyrina*). 7a. Larva. 8. Goat Moth (*Cossus ligniperda*). 8a. Larvae, in Willow. 9. Green Oak Moth (*Tortrix viridana*). 9a. Larva, descending from rolled leaf. 10. Codlin Moth (*Carpocapsa pomonella*). 10a. Larva on Apple. 11. Cockchafer Beetle (*Melolontha vulgaris*). 12. Rose Chafer Beetle (*Cetonia aurata*). 13. Pine Beetle (*Hylesinus piniperda*)—enlarged. 14. Garden Chafer, or June Bug (*Phyllopertha horticola*). 15. Gooseberry Saw-fly (*Nematus ribesii*). 15a. Larvae. 16. Colorado Beetle (*Leptinotarsa decemlineata*). 16a. Larvae. A. Blackthorn. B. Oak. C. Gooseberry. D. Hawthorn. The drawings are life-size, except of very small insects (actual sizes indicated by a line).



## USEFUL INSECTS

1. Lace-wing Fly—*Chrysopa (Nothochrysa) vulgaris*. 1a. Eggs. 1b. Larva. 2. Two-spot Ladybird Beetle—*Coccinella bipunctata*. 2a, 2b. Larvae, with one enlarged. 3. Seven-spot Ladybird Beetle—*Coccinella septempunctata*. 4. Spiny Fly—*Tachina (Echinomyia) grossa*. 5. Spiny Fly—*Tachina (Fabricia) ferox*. 5a. Larva. 6. Hover Fly—*Syrphus (Calabomba) pyrastris*. 6a. Larva. 7. Hover Fly—*Syrphus ribesii*. 8. Hornet—*Vespa crabro*. 9. Sun beetle—*Pterostichus vulgaris*. 10. Green Tiger Beetle—*Cicindela campestris*. 10a. Larva, in burrow. 11. Devil's Coach-horse Beetle—*Oryctes nens*. 12. Glow-worm Beetle (male)—*Lampyrus noctiluca*. 12a. Female. 13. Violet Ground Beetle—*Carabus violaceus*. 14. Bracon Fly—*Microgaster glomeratus*. 14a. Cocoon, spun by larvae emerged from caterpillar of Common Cabbage White Butterfly, with enlarged cocoon below, showing lid. 15. Ichneumon Fly—*Pimpla instigator*. Size: see note, p. 96.

butterflies, are 'holo-metabolic' or subject to complete transformation. The eggs are deposited in such large numbers that they have individually only a very limited food storage capacity. The result is that each larva is obliged to assume a shape which will allow of its better growth and development, and the form assumed varies a great deal among the different species. The larva of a fly is a maggot which has no distinct head; that of a bee is a grub, whose head is clearly marked; and the caterpillar is the larval butterfly. The normal growth of a larva of this class is as follows: At first, after it has emerged from its shell, it is very active and greedy for food. The body is segmented and supplied with all the organs except the sexual; there are no wings nor compound eyes. In every larva, moreover, what is known as the 'fat body,' that is, a mass of fatty tissues in the trunk cavity, is peculiarly well developed. Here, after a busy life of moulting and growing, it accumulates stores of reserve food for use during the coming metamorphosis. Larvae for the most part crawl about, and to aid them in movement they may have from 2 to 5 pairs of 'pro-legs,' that is, foot-like processes, on the abdomen as well as true legs on the thorax. The period of change is called the pupal or chrysalis stage. Some larvae, such as those of the silk moth, spin cocoons of silk to serve as a shelter during the metamorphosis. The larva now becomes a 'pupa,' which is quiescent and cannot absorb food, but sometimes, as with dragon-flies and grasshoppers, the larva is transformed into a 'nymph,' which eats and continues active. Wings grow, and, what is still more marvellous, there is gradually taking place a complete reconstruction of the internal structure of the former larva. Amoeboid cells are fashioned out of the larval organs, and upon the ruin of the latter there grow new structures better adapted for the changed life that is to come. Finally the pupal husk is broken, and there emerges the 'imago' or perfect I. The task of reproduction naturally rests with the fully grown I., which sometimes dies after it is completed. The sexual organs of larvae and pupae are usually imperfect.

**Classification.** I.s are divided into 2 subclasses, Apterygota (wingless forms) and Pterygota (winged forms). In the Apterygota, which include the Bristle-tails (*Thysanura*) and Spring-tails (*Collembola*), there is no metamorphosis (or but a very slight one) in the development to adult form. The Pterygota can be readily divided into two, Exopterygota and Endopterygota. In the Exopterygota the wings develop outside the body and there is but a slight metamorphosis without a pupal stage. The Orthoptera (cockroaches, stick- and leaf-I.s, locusts, grasshoppers, crickets, etc.), Dermaptera (earwigs), Plecoptera (stoneflies), Isoptera (termites), Anoplura (lice), Ephemeroptera (may-flies), Odonata (dragon-flies), Thysanoptera (thrips), and Hemiptera (bugs) are the more important orders of this div.

In the Endopterygota the wings develop inside the body and the metamorphosis to adult form is elaborate, involving a pupal stage. The main orders of this division are: Neuroptera (lace-wings), Mecoptera (scorpion-flies), Trichoptera (caddis-flies), Lepidoptera (butterflies and moths), Coleoptera (beetles), Aphaniptera (fleas), Diptera (true-flies), and Hymenoptera (ants, bees, wasps, ichneumon flies, etc.).

**Life and general characteristics.** I.s have most diverse haunts and frequent underground caves, hot springs, and even the sea; nevertheless, the majority are aerial and dwellers on land. In tropical and temperate climates they abound, but they are represented even in the polar regions. Many, as, for instance, the pond-skater, whirligig beetle, water-scorpion, and gnat, are aquatic, at least for the earlier days of their life. Generally speaking, adult I.s are short-lived and die within a twelvemonth; the adult Ephemerid (may-fly), as its name implies, does not live beyond 24 hrs, but the queen bee flourishes for some years, and a queen ant will occasionally last for 13 hrs. The food of insects is very various. Some take the pollen and nectar from the flowers; others feed on weaker species of their own kind; others act as internal or external parasites of higher animals; others again grow fat on putrescent matter, and yet another section sucks juices secreted by living organisms. Parents will often gather a store to feed their young, even though they themselves die before the larvae are hatched. A number of I.s are able to convey information or make love by means of sound. This may be produced by the rubbing together of the rough surfaces of the outer cuticle, or by the buzzing vibrations of the leaf-like appendages near the stigmata of the air-tubes, or by the quick flutter of their wings. Thus grasshoppers scrape their legs against their wing ribs and male crickets chirp by rubbing their wing-cases together. Many Hymenoptera produce their noise by the second means, whilst the whirring sound of bees and flies is due to wing motion. The death's head moth emits a noise by blowing air out of its mouth. Sometimes the noise is purely automatic. If left unchecked I.s would multiply with an alarming rapidity. Fortunately, however, the difficulty of obtaining food, inclement weather, and the predilection which birds, ant-eaters, frogs, and fishes show for them as food, counteract their amazing fecundity. As with higher animals, so certain I.s are naturally protected by having an outward appearance which exactly counterfeits their actual surroundings. This is the case with moss- and leaf-I.s and with humming-bird moths. Other I.s are saved from molestation by disgusting fluid discharges, an unpleasant smell, a hard skin, or an offensive weapon like a sting. The social species, ants, bees, termites, and wasps, offer a most instructive and fascinating field for study by reason of their 'intelligence,' architectural skill, and developed communal life.



**Economic value.** Unconsciously, I.s. play a great part in the cross-fertilisation of flowers as they carry pollen from one bloom to another. The 'myrmecophilous' (ant-loving) plants are actually guarded by ants from other and hostile intruders. Man owes a debt of gratitude to the hive-bee for its honey and wax, to the silk moth for its silk, and to the cochineal I. for a dye. But there are many species which seem purely harmful and destructive. Cattle, sheep, and horses are annoyed and attacked by the bot-fly; crops, orchards, and vines are a prey to a whole army of greedy parasitic I.s., and the havoc caused by a locust swarm is often immense. House-flies and fleas have been proved to be the agents which carry pathological or disease-bearing germs in a number of infectious outbreaks; the mosquito is responsible for malaria, yellow fever, and the horrible disease called *Elephantiasis arabum*, and the bite of the tsetse-fly is often fatal; lice transmit typhus, and rat fleas carry bubonic plague. It is unnecessary to enlarge on the local irritations produced by lice, fleas, and gnats. See also ENTOMOLOGY and under individual I.s.

See L. C. Miall, *Natural History of Aquatic Insects*, 1895; G. H. Carpenter, *The Biology of Insects*, 1928; W. M. Wheeler, *The Social Insects*, 1928; H. A. Wardle, *The Problems of Applied Entomology*, 1929; Sir J. Lubbock, *Ants, Bees, and Wasps*, 1929; C. B. Williams, *The Migration of Butterflies*, 1930; A. D. Imms, *A General Textbook of Entomology*, 1930, *Recent Advances in Entomology*, 1931, *Social Behaviour in Insects*, 1931, and *Insect Natural History*, 1947; C. Weed, *Insects' Ways*, 1930; W. M. Wheeler, *Demons of the Dust: a study in Insect Behaviour*, 1931; C. L. Metcalf and W. P. Flint, *Fundamentals of Insect Life*, 1932; E. Stép, *Bees, Wasps, Ants, and Allied Insects of the British Isles*, 1932; J. Henri Fabre, *Scènes de la vie des insectes*, 1933, and *Social Life in the Insect World*, 1937; V. B. Wigglesworth, *Insect Physiology*, 1934; R. E. Snodgrass, *Principles of Insect Morphology*, 1935; Sir J. Thomson, *The Ways of Insects*, 1935; C. D. Duncan and G. Pickwell, *World of Insects*, 1939; E. W. Teale, *Near Horizons*, 1947; G. H. Stovin (ed.) and W. Stokoe (compiled), *The Caterpillars of British Moths*, 1949.

**Insect Bites and Stings.** The greatest danger from insect bites and stings lies in the disease-producing organisms that the insect may carry. In this way mosquitoes carry malaria; fleas, plague; lice, typhus fever; and so on. The biting insects which directly give most trouble to man are gnats, mosquitoes, fleas, lice, and bed-bugs. With their piercing mouth parts these insects puncture the skin and then suck blood through the proboscis. Gnats and mosquitoes pour a little saliva into the wound, so irritating it and promoting the flow of blood to the surface. Breeding of gnats and mosquitoes may be reduced by drainage of marshy places and standing water. Fish and aquatic insects that will eat the larvae should be kept in

standing water that is needed for any purpose. Strong essential oils such as oils of lavender and eucalyptus will keep away gnats, mosquitoes, and fleas. Bites should not be rubbed; irritation may be allayed by bathing with a cooling lotion and the application of ammonia. If the wound becomes septic hot fomentations should be applied. To drive away fleas, clothes and even the body may be dusted with fresh pyrethrum powder. The modern insecticides (q.v.) such as D.D.T. are also very effective. Dogs should be frequently washed with a good disinfectant dog soap. Bugs may be exterminated by fumigation with sulphur. In Great Britain the chief stinging insects are bees, wasps, occasional hornets, and ants. If the sting remains in the flesh, it should be flicked off with a quick lateral movement of the finger nail and ammonia or sodium bicarbonate solution applied. Pressing on, or rubbing, the wound is to be avoided so forcing the poison quickly into circulation. The wound should not be sucked because the poison may affect the mouth. Some insects are covered with stinging hairs. The larva of the Brown-tail moth has barbed hollow hairs containing a fluid which in contact with the skin sets up a rash resembling eczema. The hairs may be blown by the wind to clothing and cause great discomfort. An alkaline lotion containing menthol, zinc oxide, and a disinfectant gives relief.

**Insect Powder**, see INSECT BITES AND STINGS.

**Insecticides** are indispensable to all farmers and horticulturists. They are of 2 main types—stomach and contact I. Stomach I. are ingested by the insects along with the plant tissue and enter the system via the stomach. Where insects such as aphides feed by sucking the plant juices an insecticide may be used which is absorbed by the plant and remains active for some time. 'Schradan' is an example but is very poisonous and care must be exercised in its use. Contact I., as their name suggests, poison insects on contact. The best-known substances of this type are nicotine, pyrethrum, derris, D.D.T., and products containing B.H.C. (benzene-hexachloride). They may be used as dusts or liquid sprays. The last two are particularly useful in controlling the external parasites of farm live-stock as they are not poisonous to the animals themselves. New I. are continually being discovered and tested. 'Aldrin' controls wireworms, organic phosphorus compounds such as Parathion control aphides, and D.N.C. (dinitro-ortho-cresol) is useful as a winter wash for fruit trees. Older materials such as Paris green still find limited use but are being replaced by the newer products.

**Insectivora** (Lat., 'insect-eating'), order of placental, non-volant mammals. They are small, and derive their name from their common food. All have teeth peculiarly well adapted for eating insects, with tiny conical tubercles on the top of the molar teeth. Many have a full complement of teeth—incisors, canines,

premolars, molars, and even temporary milk molars. The actual number varies with different families, but 44 is an average total. I. put the greater parts of their soles on the ground when they walk and are therefore said to have 'plantigrade' feet; there are 5 toes, each one armed with a claw. They occupy an exceedingly low place in the scale of mammalian development; many zoologists, indeed, regard them as being more or less representative of the primitive mammalian stock. In habit the I. are, generally speaking, both terrestrial and nocturnal; a few, however, like the Potamogales, are aquatic, and others, like the tree shrews or tupaias of India and the Malay Peninsula, are arboreal. Quite a number, as, e.g., the large group of moles, or *Talpidae*, burrow in the ground. Many fossil I. have been discovered, especially in the Tertiary strata, and more than 200 living species are known. Members of this order multiply with astonishing rapidity; the hedgehog may have a litter of 8, whilst that of the tenrec sometimes numbers over 20. Their muscular system is well developed; their skin is thin, and shrews and other species are provided with scent-glands at the sides of their bodies. Australia and S. America are the only large areas of the globe where there are no I.; in all other tropical and temperate zones there are many representatives.

**Insectivorous Plants.** One of the most important of the essential elements of plant food is nitrogen. Usually it is obtained from the nitrates of the soil; parasites receive it from the bodies of their host-plants; leguminous plants living in symbiotic relationship with bacteria probably exchange some of their carbon for the nitrogenous compounds of the bacteria. I. P., however, adopt the simple expedient of entrapping tiny animals and absorbing their nutritious juices. A well-known S. Amer. example is *Dionaea muscipula*, or Venus' fly-trap. The leaf-blade forms a round flat disk edged with teeth near the apex, and each half is capable of moving inwards from the midrib. Should an insect alight on one of the sensitive hairs, the leaf-blades curl upwards enclosing the creature, and soon absorb the nitrogen it contains. The mechanism of *Drosera rotundifolia* (see *DROSERAS*), the sundew common to Brit. moors, is very similar to that of Venus' fly-trap, but it attracts its prey by means of a sticky, glistening, dew-like mucilage (hence the name 'sundew'). Another common Brit. plant of like habit is *Pinguicula vulgaris*, the butter-wort, a pretty herb with a rosette of pale green leaves growing close to the ground and a flower somewhat resembling a wild pansy. *Utricularia vulgaris*, the bladderwort, is an aquatic insectivorous plant, which produces bladder-shaped traps; the insect enters the bladder readily by means of a valve opening inwards, but it is unable to return, and after its death its decomposed elements are absorbed by the cells which line the bladder. Many I. P., such as those previously mentioned,

and also the N. American pitcher plants (*Nepenthes* and *Sarracenia*), produce an actual digestive juice. These plants would be better described as carnivorous, since the bladderwort, for instance, feeds on small aquatic crustaceans as well as insects; Charles Darwin showed that the sundew would use boiled white of egg and similar material. See L. Lloyd, *Carnivorous Plants*, 1942.

**Insel-Verlag**, Ger. publishing house, founded by Anton Kippenberg (d. 1950) in Leipzig, 1902, for the pub. of the review *Die Insel*. The firm became later a sponsor of good typography and quality book production in Germany, and specialised in popular eds. of Ger. classics and contemporary literature. After the destruction of the firm in the Second World War, a branch was opened in Wiesbaden, which now exists independently beside the rebuilt house in Leipzig.

**Inselberg** (Ger. 'is. mount'), name given to certain steep-sided hills rising abruptly from an otherwise level landscape. Is form features of certain African landscapes particularly in Mozambique, central Tanganyika, and parts of S. Africa. They are almost invariably made of granite. Their origin is still debated but it is agreed that an I. landscape may form when a mature land surface carved out of granitic and gneissose rocks is exposed to a certain sequence of tropical climates.

**Insemination, Artificial**, fertilisation of an egg by spermatozoa (semen) reaching it through some artificial agency, i.e. not by normal transference of the sperm from the male animal during mating of male and female individuals. Its most usual application is in mammals, where the earliest recorded experiments are those of Spallanzani (1780), who succeeded in fertilising dogs by sperm introduced artificially into the vagina. Artificial I. is now employed in the rearing of farm animals, especially cattle. There are sev. centres in Great Britain from which skilled inseminators collect the semen from high-grade bulls and inseminate cows on surrounding farms, thus saving many farmers the expense of keeping a bull. It has now been discovered that semen can be stored almost indefinitely by a deep-freeze technique and this makes it possible to use only the semen from those bulls which have been proved to be outstanding. Artificial I. sometimes establishes pregnancy in humans when normal coitus fails through some defect in the reproductive organs. There can be no legal objection to its employment when the sperm is provided by the husband (A.I.H.), but artificial I. by some outside donor (A.I.D.) is condemned as adultery by the Church (though in Jan. 1958 the Court of Session held that it was not so in law), besides raising such problems as who is the legal father of the child, or indeed whether the child is legitimate. Nevertheless A.I.D. is carried out regularly in at least one London clinic. See Barton, Walker, and Wiesner, *British Medical Journal*, p. 40, 13 Jan. 1945, and

E. J. Perry (ed.), *The Artificial Insemination of Farm Animals*, 1947.

**In-Shan Mountains**, range in Mongolia, on the N. side of the Hwangho. They rise to an altitude of from 5000 to 8000 ft, and are a part of the extensive Khingan mt-chains or tablelands of E. Asia, separating Mongolia from Manchuria.

**Insolation**, see SUNSTROKE.

**Insolvency** denotes inability to pay one's debts. The term, so far as Eng. law is concerned, is for most practical purposes replaced by the term 'bankruptcy' (see BANKRUPTCY, and on the old distinction between I. and bankruptcy). In Scots law bankruptcy is hardly a term of art, except in the phrase *notour bankruptcy*, which implies a condition of I. attended with certain statutory effects restricting the insolvent's power of dealing with his property; but it is also commonly used in connection with the public bankruptcy process of sequestration or *cessio*, under which an insolvent yields (*cessere*) his property up to his creditors. Taken in this latter sense the term does not differ essentially from the state of a debtor who has been *adjudicated* a bankrupt under Eng. law. The importance in Scots law of the condition of I., as distinct from bankruptcy which has become public, is that it has certain special effects on the debtor's power of granting alienations. The most important general effect of I. is that it is a stop in the direction of *notour* bankruptcy, it being a necessary condition of obtaining a *cessio honorum*. The special effects of I. above alluded to are that the insolvent is restrained from depleting an estate or fund insufficient to meet all claims by voluntary or gratuitous alienations, or by alienations made for an inadequate consideration or by fraudulent preferences of one creditor over others. The only courses open to an insolvent, failing his inability to regain his solvency, are to go through with his public adjudication of bankruptcy or sequestration, or to try to provide some voluntary or extrajudicial arrangement of a more or less private character.

**Insomnia**, see SLEEPLESSNESS.

**Inspectors, Factory**, see FACTORY LEGISLATION.

**Inspiration** (see also BIBLE) (Lat. *inspiratio*, *inspirare*, to breathe into), term used in theology to denote that Divine influence on the writers of the Bible by means of which their writings became a Divine revelation. All orthodox theologians are agreed in regarding the Holy Scriptures as the revelation of God in some sense, but there is much difference of opinion as to the method and extent of the Divine I. The dogmatic formula to be traced through various councils and writers from a very early date. *Deus est auctor librorum sacrae scripturae*, was explained in some detail by the Vatican Council, which pronounced that the Scriptural writings are held as sacred and canonical by the Church, 'not because after being composed by merely human industry they were then approved by her authority, not simply because they

contain Revelation without any error, but because, being written under the inspiration of the Holy Ghost, they have God for their Author.' The doctrine of *Verbal I.* was held for cents. by Protestants in a very mechanical and oracular form (see FUNDAMENTALISM). A more dynamic view of I. in various forms is now held by Protestants as well as by Rom. Catholics. The writers did not lose their own individuality, but were so under the influence of the Spirit of God that they could make no error in transmitting to mankind the truths which they were intended to convey. The theory of dynamic I. finds ample support in the Fathers. 'The Gospel,' says St Jerome, 'is not in

God, but yet a man—*inspiratus a Deo sed tamen homo*.' A theory widely held outside the Rom. Catholic Church is that of *Essential I.* which holds that the I. of Scripture relates only to faith and morals. See B. F. Westcott, *General Survey of the History of the Canon of the New Testament*, 1896; W. Sanday, *Inspiration*, 1896; J. Hastings, *Dictionary of the Bible*, 1898; C. H. Dodd, *The Authority of the Bible*, 1928; D. Davidson, *Hidden Truth*, 1934; R. H. Malden, *The Inspiration of the Bible*, 1935; Pius XII, *Divino Afflante Spiritu*, 1944; article, 'Inspiration and Inerrancy,' in *A Catholic Community on Holy Scripture*, 1953.

**Insterburg** (since 1946 Chernyakhovsk), tn in the Kaliningrad Oblast of the Russian Federal Rep. (former E. Prussia), 57 m. E. of Königsberg. It has some industry and is an important railway junction. Founded in 1337 by Teutonic knights as a castle, it has been a tn since 1583. Pop. (1939) 49,000.

**Instinct**. Everyone may be said to understand in a general way what is meant by I., despite the difficulty of formulating any satisfactory definition. Darwin himself, in his examination of the various distinct uses of the term, refrained from any attempt at definition. It may, however, be tentatively defined as those congenital or natural behaviour dispositions which impel an animal under given circumstances to act in a certain way without experience, and frequently without a knowledge of the object with which the action is done. Scientific psychologists have rather naturally been greatly concerned with the origin of I. and the problems surrounding it. See also BEHAVIOURISM; EVOLUTION; HABIT. For the mass of evidence accumulated on the character or manifestations of I. see C. Darwin, *Origin of Species*, 1859, and *Descent of Man*, 1871; G. J. Romanes, *Mental Evolution in Animals*, 1883; C. Lloyd Morgan, *Habit and Instinct*, 1896; A. Weismann, *Essays upon Heredity and Kindred Subjects*, 1889; S. Alexander, *Art and Instinct*, 1927; D. Katz, *Animals and Men*, 1937; K. Z. Lorenz, *King Solomon's Ring*, 1952.

**Institut de France**, estab. in 1795, is composed of the following 5 academies:

Académie Française, founded 1635 by Louis XIII; Académie des Inscriptions et Belles-Lettres, founded 1663 by Louis XIV; Académie des Sciences, founded 1666 by Louis XIV; Académie des Beaux Arts, founded 1803; and Académie des Sciences Morales et Politiques, founded 1832. Each academy has a separate organisation but participates in the advantages of the common library, archives, and funds. Election to membership is by ballot and subject to confirmation by gov. Every member receives a salary. Membership of the Académie Française is limited to Frenchmen—popularly known as the 'Immortals.'

**Institut Français**, educational centre in London, its object being to promote a knowledge of France among Eng. people—just as the purpose of the Brit. Council is to promote a knowledge of Brit. culture among foreigners. Its offices are in Queensbury Place, London, S.W.7.

**Institut Pasteur**, see PASTEUR, LOUIS.

**Institute**, in Scots law, the person in a deed of settlement or other instrument by which lands are granted (see GRANT) who takes the first or earliest estate (q.v.) or interest. Those who follow the I. are called the heirs or substitutes. If the I. dies before the disposer or grantor, the first substitute or heir takes without a service (process in Chancery for completing the title of an heir). (Conditions annexed to the grant will only affect the substitutes, unless the grantor has made it clear that the I. is also to be bound. See Bell, *Dictionary*, and Erskine's *Principles of Scots Law*.)

**Institute of Economic Affairs**, charitable trust formed in 1956 to teach the principles of economic science as formulated by the Eng. classical economists, Adam Smith, David Ricardo, Walter Bagehot, John Stuart Mill, and others, and later developed and applied by Alfred Marshall, and in modern times by F. A. Hayek, John Jewkes, L. von Mises, F. W. Paish, Sir Arnold Plant, Lionel Robbins, George Schwartz, and other economists of the liberal school.

The Institute was started with the guidance of an advisory council consisting of Colin Clark, Sir Oscar Hobson, Lord Grantchester, Prof. E. J. Nash, and George Schwartz. The founders of the Institute believed that if the Brit. people had possessed a better understanding of the essentials of economic science, much legislation inimical to individual effort and initiative would not have reached the Statute Book, and the persistent inflation after the Second World War would not have been allowed to develop. They believed that the social and economic upheavals which threatened the community could be avoided if the younger generation were taught the essentials of economic principles and understood the moral foundations governing the acquisition and use of property, the right of the individual to free access to competitive markets, and the need for a stable monetary system. They wanted to demonstrate the dangers of over-taxation, of

restrictive practices by capital and labour, and of the growing interference of the State with individual liberty in economic affairs.

The Institute set out to publish papers and pamphlets for distribution to schools and univs., especially to study groups in the social sciences formed among sixth form students, and to distribute articles on current economic questions to newspapers and periodicals, and to supply lecturers. It has pub. studies of sterling convertibility, pensions, hire purchase, advertising, and the earnings of the City. The work of the Institute was assisted by the pub. of R. L. Heilbroner's *The Great Economists*, 1955, and Lionel Robbins's *The Theory of Economic Policy in English Classical Political Economy*, 1952. The General Director of the Institute is Ralph Harris. See CLASSICAL ECONOMISTS and INDIVIDUALISM.

**Institute of International Affairs**, see ROYAL.

**Institute of Recorded Sound**, see RECORDED SOUND, BRITISH INSTITUTE OF.

**Institute of Sanitary Engineers**, see PUBLIC HEALTH.

**Institutes**, term formerly used to denote text-books containing the fundamental principles of a legal system. The study of Rom. law was based on the I. of Gaius which inspired the I. of Justinian. The latter, which incorporated changes in Rom. law subsequent to Gaius, were expressly pub. to promote the study of legal principles. Coke, the 17th-cent. Eng. judge, described his 4 vols. of *Commentaries upon the Common Law* as 1., although this term could be more appropriately applied to the later commentaries of Blackstone and Stephen written respectively in the 18th and 19th cents. with more logical arrangement and comprehensive exposition than Coke's I. John Erskine of Carnoch, prof. of law, wrote *Institutes of the Law of Scotland* in the 18th cent.; this was for long the leading text-book on Scots law and is even now often cited.

**Institution**, one of the necessary steps in the appointment of a rector or vicar. It is a kind of investiture with the spiritual part of the benefice, the care of the souls of the par. I. fills the vacant benefice and induction (q.v.) follows. See Phillimore, *Ecclesiastical Law*, 1845.

**Instrument of Government**, document which prescribed the powers of Oliver Cromwell when he accepted the office of Protector of the Commonwealth of England (16 Dec. 1653). Though a failure, it contains a number of interesting constitutional innovations, especially in regard to parl. representation. It provided for triennial parliaments, to be in session for not less than 5 months, with 400 members for England and 30 each for Scotland and Ireland; an army of 30,000 men; limited freedom of religion; and for an elective Protector. The parliament of Sept. 1656 drew up the Humble Petition and Advice which replaced the I. of G.

**Instrumentation**, see ORCHESTRA.

**Instruments, Electrical**, see ELECTRIC METERS.

**Insures**, Gallic tribe who crossed the Alps, and were estab. in Cisalpine Gaul by the latter half of the 5th cent. BC. Shortly before the First Punic War the Romans reduced them to submission, but they regained their liberties after Hannibal's triumphant progress through Italy. In 196 BC they finally lost their independence.

**Insula**, see LILLE.

**Insulating Materials**, electrical, substances which do not conduct electricity and are used for covering as separating conductors carrying current or exposed to high-voltage charge. Solid I. M. are natural minerals such as mica, asbestos, slate, marble, quartz, sulphur, or ceramics and glass; textiles, leather, wood, paper, fibres, plastics, rubber, ebonite. Liquids are mineral oil, paints, and varnishes. Gases are mostly insulating under normal pressure and temp. and in the absence of radiations.

**Insulator**, specially shaped body, usually of ceramics or glass, fixed on transmission line poles for carrying the conductors. Pin-type I.s vary in shape from the single bell used on telecommunication lines to the multiple-bell type used on medium-voltage power lines. They are fixed upright on the pole arm by a bolt up the middle of the I. body. Suspension-type I.s consist of a chain of disks, each with cup-shaped top, connected together by steel bolts cemented into the disk and fitting into a steel grip in the cup of the next lower I. The chain hangs from the pylon arm and the lowest I. carries the conductor. The higher the voltage, the greater is the number of disks in the chain. The 132 Kw. lines of the Brit. Grid carry chains of 10 I.s. The word I. is sometimes used for any substance not a conductor. See INSULATING MATERIALS.

**Insulin** is the active substance in the secretion of isolated groups of pancreatic cells forming the 'islets of Langerhans.' In the absence of this secretion, excess of sugar passes into the blood and causes *Diabetes mellitus*. I. is essential for the correct metabolism of carbohydrates and fats. It stimulates the oxidative breakdown of glucose, stimulates the synthesis of muscle and liver glycogen from glucose, and inhibits the breakdown of liver glycogen. In 1921, Dr R. L. Mackenzie Wallis claimed to have isolated this active substance from the pancreas of freshly killed pigs, and administered it in capsules to diabetic patients. In the same year, Dr F. G. Banting (q.v.) assisted by Best, at Toronto, isolated and named the active constituent I., and Collip (1922) purified the crude product. For medical purposes I. is now prepared from the pancreas of oxen, and is found to be beneficial only when injected. Abel (1925-8) isolated crystalline I. and determined its properties, and more recently Sjögren at Uppsala has determined its molecular weight to be approximately 35,000, and the shape of its molecule spherical. From these results, and the determination of other physical constants, he concludes that I. is a protein

belonging to the same group as egg albumin and Bence Jones protein. As yet it has not been possible to produce I. synthetically. In solution crystalline I. is stable provided the pH (hydrogen-ion concentration, q.v.) ranges from 4.5 to 7. Beyond this range it dissociates into substances of lower molecular constitution, but near the borders of the range of stability, the reaction is reversible. If the solution be too acid or too alkaline permanent dissociation will occur. For this reason I. cannot be given by mouth. I. is



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used in courses of hypo-glycaemic shock therapy in the treatment of mental disorders. See also DIABETES and INSANITY.

**Insurance**, contract under which one party undertakes for a consideration to indemnify another against certain forms of loss. In the present day the practice of I. has become so general that practically every contingency which may arise as the result of accident may be covered, but the earliest and most widely practised forms of I. are 'Marine,' which applies to ships and property at sea; 'Fire,' which is the I. against fire of property on land; and 'Life.' This last differs from other I.s in that, although a contract to indemnify against loss by premature death, at the same time it provides a certain benefit. For this reason life business is sometimes referred to as 'assurance,' as distinct from 'insurance,' but there is no rule for this, and the terms 'insurance' and 'assurance' are synonymous in the profession.

**MARINE INSURANCE**. The first I. business to be practised, and it is probable that for commercial purposes it originated in Flanders, being introduced into England

early in the 16th cent. Marine business differs in one notable respect from other I.s, in that, although it is done by a number of independent, self-contained companies, a large share is transacted by individuals known as underwriters. These underwriters are members of a society called Lloyd's, the name originating from a certain coffee-house in Abchurch Lane, where the original members met. Their affairs are arranged by a committee, and the subscribers include the companies who also transact the business. The society has agents throughout the world who keep in touch with the shipping at all the principal ports, and render an account of the same, together with particulars of any casualties which may have happened. An I. is divided amongst a group of underwriters, each holding a small proportion of the total amount at risk. Policies are issued to cover vessels, their freight and cargo, against all maritime risks, which include risks of navigation, fire and seizure, during a certain period, not exceeding 1 year, or for a specified voyage. The I. covers the ship or cargo, and includes the cost of the I. upon the whole. Policies may be 'time' policies or 'voyage' policies, as specified above, and are either valued, in which case the sum insured is based upon a specific bill of lading, or open, when the value of the vessel is estimated as at the date of sailing, plus the amount she would have earned on the completion of the voyage and the cargo at its invoice price. The settlement of marine losses is of particular interest, as the question of salvage following a loss sometimes presents considerable difficulty. It may happen that a vessel carrying a valuable cargo is sunk where it is possible to salvage a portion of the goods insured, and in such a case there are varying methods of effecting a settlement of the claim, and several courses open to adoption by the underwriters. For instance, they may pay the total loss and recover what they can of the salvage, themselves arranging with a firm to conduct the operations, or they may pay the insured's actual loss, after deducting the value of the goods salvaged, plus the expenses of the operations. The destructible nature of the goods insured is, of course, the principal factor, and the cost of the I. is largely affected by this. Demurrage charges and the principles governing them were revised in 1924 at a congress at Stockholm where a set of regulations arising out of the International General Average Rules of 1890 were re-drafted and adopted internationally. In 1924 the Carriage of Goods by Sea Act was passed, which adjusted many anomalies arising out of the legal questions involved in contracts of affreightment between shipowners and shippers.

**FIRE INSURANCE.** Contract of indemnity in respect of loss or damage to material property by fire. The policy-holder (termed the insured) pays a certain agreed amount (the premium) to the insurer, and is reimbursed his loss out of the fund accumulated by the insurer. Premiums are generally payable annually, and as a rule 15 days of grace are allowed for payment

of the amount due. Fire I. was first introduced into this country more than 200 years ago, but there is evidence of a type of fire I. at a much earlier date by means of levies on guilds, wards, etc. In the early days companies were formed for the sole purpose of transacting fire I. but at the present time most classes of I. are transacted by each. There are more than 100 Brit. companies underwriting fire I. in the U.K., and most of them have extended their activities overseas, where they have an excellent reputation. It is estimated that over 75 per cent of fire premiums paid to Brit. companies come from overseas, and of this amount more than half is from the U.S.A. The ordinary form of policy issued in respect of trade property covers damage by fire, lightning, explosion of coal gas (except on premises where gas is manuf. or stored), and domestic boilers. The private-house fire policy usually includes thunderbolt, subterranean fire, earthquake fires (not earthquake shock), and fires caused by rioters and strikers.

Practically any property that is capable of being damaged by fire can be insured, the premium charged being based on the hazard of the risk. For example, private houses, blocks of offices, and property of a like nature, where the risk of serious fire is slight, are termed non-hazardous, and rated accordingly, usually at about 1s. 6d. per cent. On the other hand, factories where inflammable goods are manuf., buildings of flimsy construction, or situated in a neighbourhood presenting more than usual fire risk, are deemed hazardous, and rated according to their merits. Companies endeavour to calculate the premium for any one class of trade so that over a period of years the income is sufficient to meet the losses and expenses and show a small percentage of profit. The profits of a fire I. company are usually about 5 per cent of the premium income.

To obtain data on which to calculate premiums, offices depend on their loss experience in past years. Because the scope of each office's experience is not sufficiently general for accurate results to be obtained, a number of companies now combine their analysed records for certain types of factories and shops, and charge similar rates, based on the results of their joint experience. The association formed by them is known as the Fire Offices Committee, and because of the efforts of this committee, premiums have been adjusted so that, as far as possible, each individual pays his equitable proportion to the I. fund. The members of this committee are called tariff companies, whilst those that remain distinct are known as non-tariff companies, and charge whatever premiums they think adequate, based on their own underwriting experience. In this latter group are included underwriters at Lloyds. By penalising bad features and allowing substantial reductions in premium for good, fire offices have effected tremendous improvements in methods of construction, lighting, heating, etc.

Many valuable lives are also saved every year through these improvements. The public is not generally aware of this branch of I. work, nor does it know of the time and money spent by the I. companies in testing and approving fire-extinguishing appliances, fire alarms, and building materials. Offices have surveyors and experts who may be consulted on such matters. Brit. fire brigades are now maintained by cos. and co.-bors.: in the past the duty was undertaken by the fire I. companies. Each office had its own firemen and appliances, and fixed a metal

and household effects are insured against fire, lightning, aircraft, burglary, storm, flood, and many other perils, and domestic servants I. is also included. The rate of premium is usually 5s. per cent. Comprehensive building policies include certain of these risks at a lower rate.

Another form of fire I. protection now being placed before traders and manufacturers is loss of profits or consequential loss I. The ordinary fire policy indemnifies the trader in respect of the material damage to his property, but this does not represent the full amount of his loss by a



THE SUN INSURANCE COMPANY FIRE BRIGADE IN 1820

From an old print, reproduced by permission of the company.

plaque or fire mark on every house it insured. It being the duty of a company's men only to extinguish fires in buildings insured by their employers, the brigade would remain as sightseers if the building that was afire did not bear their company's mark. (See FIRE BRIGADES AND FIRE FIGHTING.) Fire offices in London, Liverpool and Glasgow still maintain at their own expense salvage corps. Fire I. companies must, in accordance with the Assurance Companies Act, 1909, make a deposit of £20,000 in cash or approved securities with the Board of Trade before they can accept business in this country, unless they have already made a deposit in respect of some other class of I. business included in the Act. Their ann. accounts have to be lodged with the Board every year, and severe penalties are incurred if there be any breach of the Act.

Comprehensive or all-in policies in respect of private dwellings have in the past been brought out, and combine many forms of I. in 1 document. The furniture

fire. The loss of profits policy is designed to meet this need, and reimburses him for his lost profits and increased expenditure for a certain stated period (called the period of indemnity) from the date of the loss. The period of indemnity is arranged by the trader when effecting the policy, and represents his estimate of the time necessary to set the business on its feet after a fire. The usual period is for a minimum of 12 months and for industrial risks the period is normally considerably longer. The amount payable by the insurers is normally adjusted on the basis of the decrease in turnover during the period of indemnity, as compared with the similar period in the preceding year. The amount recoverable is a proportion of this decrease, and is usually the ratio of profit and standing charges to turnover as shown in the accounts for the last financial year. Expenditure on increase in cost of working is also recoverable. The I. is adjustable to suit all types of businesses. The rates are based on the fire

premiums paid for the contents of the premises. Percentages of fire loss, a form of loss of profits I., is suited only to the requirements of 1 or 2 trades. The policy pays a fixed proportion of the amount recoverable under the ordinary fire policy. In most cases the amount of material damage is no index of the resultant loss of profits, as a comparatively small fire may entirely stop the business until the damage is made good.

Sprinkler leakage I. is now offered, as many factories, shops, and public buildings are fitted with automatic sprinkler installations for extinguishing fires. The premiums usually depend on the class of goods and the number of sprinkler heads.

Average clauses, which make the policyholder bear a proportion of the loss should the property be under-insured at the time of the fire, are seldom met with in policies for private dwellings or small trade risks. It may be unwise to under-insure, for the total liability of the company is limited to the sum insured, and the policyholder cannot recover any amount in excess of that figure. The policy is normally a contract of indemnity, and the amount recoverable is the actual value of the articles destroyed at the time of the fire, i.e. the market value of similar articles less a reasonable amount for depreciation and wear and tear. It is possible, however, to insure buildings and/or machinery and plant on the basis of reinstatement, i.e. the cost of rebuilding or replacing such property by similar property when totally destroyed or, where it is damaged, the repair of the damage and the restoration of the damaged portion to a condition substantially the same as it was before the damage. No additional premium is asked for, it being essential to have a full cover to avoid the application of the average clause. The sentimental value of an article cannot be covered. Valuable pictures, books, and works of art are usually insured for an agreed amount, because of the difficulty of ascertaining their market value. I.s based on inventories made by licensed valuers are satisfactory to both insurer and insured, provided that frequent revaluations are carried out to meet changes in market value.

Policy-holders should note that their fire I. company must be advised of any change in circumstances which may affect the I. Notice should be given if the policy is to apply to a new address or the benefit to be vested in another person; if any part of the premises becomes occupied for a purpose different from that in force when the policy was effected; if any additional or alternative method of lighting, heating, or ventilating the building is contemplated; or when any structural alterations are to be made. The I. company expect and require their policyholders always to act in good faith with them.

LIFE INSURANCE originally provided, as in the case of other forms of I., against a contingency, but it has long since been

extended to include a payment on a certain happening, such as death. The earliest life I. on record is dated 1583, when it is probable that I.s were granted to cover only short periods as a protection to creditors. The extension of the business was very gradual at first, but for the last cent. there has been such rapid growth that in 1870 the Life Assurance Companies Act was passed for the protection of policy-holders. In 1909 the business was further regulated by another Act. This provides that a company transacting life I. must deposit £20,000 with the Board of Trade, and must pub. ann. balance sheets and revenue accounts. It is also laid down that there shall be periodic valuations, not less frequently than quinquennially, of the assets and liabilities of each company. The 1909 Act further governs the procedure to be adopted when amalgamation of companies is contemplated, and the rights and privileges of shareholders and policy-holders are definitely established. The 2 main kinds of company are the proprietary and the mutual. With the former, there are shareholders who take a certain percentage of the profits as dividends, but with a mutual company all profits belong to the policy-holders. Two distinct branches of life I. are known as 'industrial' (see INDUSTRIAL INSURANCE) and 'ordinary,' but many companies transact only the latter type. In the industrial branch, policies are issued for much smaller sums, and premiums are collected by agents of the company either weekly or monthly. In the ordinary class policies are rarely issued for less than £100, and notices are issued for the collection of the premiums which are due yearly, half-yearly, or quarterly, except under a special scheme whereby an automatic system of monthly premiums is arranged. There is now a wide variety of classes of policy to choose from, but there are 2 main headings—namely, with and without profit. Policies under the former carry the right to share in the profits of the company, and this benefit is usually given in the form of a bonus added periodically to the sum assured, although it can, if preferred, probably be taken in cash. No such right accrues in the case of without profit policies, the premiums for which are therefore smaller. A life policy in its original form merely provided the sum assured at death, possibly within a certain time. This would now be called a term policy. It has been followed by the whole life policy, securing the sum assured at death whenever it may occur, up to which time the premiums are payable each year.

An equally important class of policy is the endowment assurance, securing payment at the end of a fixed term or in the event of previous death. With any class of policy it is possible by paying a higher rate of premium, to limit the number of payments to a maximum, and this is frequently done in the case of whole life contracts, in order to prevent having to continue premiums throughout a long life. A modern addition in life I. is an ann. benefit in the form of a temporary annuity,



payable should the life assured die within a certain time from the date of the policy. This is a 'family income' policy, intended to give extra financial assistance before the assured has had time to make adequate provision otherwise. It is not necessary for any policy to be effected on one life alone. The amount required can be made payable on the first or other death of two or more persons, or on the death of one person before another. Such contracts have their uses for business or financial transactions.

The premium for whatever policy is selected depends upon the age at entry into I., and it is usual to quote for the age next birthday. The calculation of premiums is a highly technical work, which devolves on the actuaries of the I. companies. They rely upon various statistics in the form of mortality tables. As each premium is paid, a certain amount is absorbed in expenses, and of the balance, part goes to cover the current risk, while the remainder is held as a reserve to the credit of the policy-holder against the time when the claim will arise. Thus when a policy has been in force for sev. years, it begins to be of value, and if the I. is no longer required, it can be surrendered to the company for cash. Alternatively, the company may be willing to lend on the security of the surrender value of the policy. It may also be possible to cease paying premiums and convert the policy into a fully paid one securing a reduced sum assured.

The rates of premium quoted by any company are for normal healthy lives, and evidence of good health must be furnished by each proposer for I. At one time it was necessary in all cases to submit to medical examination by a doctor nominated by the company, but within certain limits as to age and amount of policy, it is now possible to effect an I. without examination. A person may insure his own life for whatever sum he pleases, but he can insure the life of another only if he has an insurable interest therein. In all cases a proposal form has to be completed, and any fraudulent statement thereon would void the contract. Questions as to family history and previous illnesses are asked, and if the answers or the result of the medical examination are unsatisfactory in any way, a higher premium than that tabulated may be charged, or the I. refused altogether. At one time life policies contained many restrictions as to occupation, foreign residence, or travel, but few limitations are to-day imposed. The main exclusion is that of suicide for a fixed period from the effecting of the I. The period varies according to the company chosen, but it is generally about a year. It is usual, also, to exclude certain special risks, such as motor racing, flying accidents for those engaged in aviation, active service in time of war, tropical climates when the assured is at the date of the policy known to be proceeding thither, and so on. But many special hazards may be covered by the payment of an extra premium, and for some particular occupations and climates

an extra premium is always required. Life I. has been recognised as an essential provision, and the premiums have been made, within limits, eligible for rebate of income tax. Although formerly the full standard rate of tax was allowed in this respect, the provision has been amended so that now relief can be claimed only at a reduced rate. This is, however, still a valuable privilege which substantially cheapens the cost of life I.

**ACCIDENT INSURANCE.** The earliest form of accident I. was fidelity guarantee which was transacted on a small scale in 1840 and was soon followed by personal accident I. The scope of accident I. has extended gradually to cover a wide range of contingencies, and it is now regarded as entering for all types of I. for which provision is not made by the marine, fire, and life depts. The principal classes are personal accident, employers' liability, motor, burglary, all risks, fidelity guarantee, public liability, live-stock, plate glass, and engineering I.

*Personal accident insurance* provides for the payment of compensation on a fixed scale in the event of death or injury by accident or incapacity by sickness. A personal accident policy is not a contract of indemnity, but where disablement benefit is covered, it is usual to make such benefits approximate as far as possible to the policy-holder's actual loss of earnings. Policies can be obtained to cover:

- (a) Accidents only.
- (b) Accidents and specified diseases.
- (c) Accidents and all sickness.

Rates of premiums are based primarily on the occupation of the person to be insured. A recent development has been the introduction of group schemes under which the employees of a firm can be insured collectively under a single policy. Such schemes can be arranged to provide for a fixed payment in the event of temporary total disablement or the benefit can be the difference between the full wages and the amount drawn under the National I. scheme. A few companies issue permanent sickness and accident policies under which the insured has the right to automatic renewal until he reaches a specified age. The policy cannot be cancelled unless the insured fails to pay the renewal premium. A medical examination is necessary for this form of contract.

*Employers' liability.* This title has come into general use since Workmen's Compensation was merged in the National I. scheme on 5 July 1948. Cover is provided to employers in respect of claims by employees or their dependents for death, injury, or disease arising out of and in the course of the employment. Employees must be under a contract of service or apprenticeship with the insured. It does not apply to sub-contractors or the employees of sub-contractors. The Law Reform (Personal Injuries) Act, 1948, which came into force on 5 July 1948, abolished the doctrine of common employment by which an employer could escape liability for claims at common law

if the injuries were caused by fellow workmen. This Act, together with the fact that an employee can make a common law claim as well as draw benefit under the National I. (Industrial Injuries) scheme, has been responsible for a considerable increase in the number of common law claims. It is also possible to make a common law claim where the injury is caused by a breach of the Factories Act, 1937. Such claims come within the scope of the employers' liability I. policy. Premiums are based on the total wages paid by the employer during the year, and a rate per cent is charged on those wages according to the trade or business.

*Motor insurance* is responsible for a substantial part of the premium income for accident I. In the U.K. and many other countries it is compulsory to have third party I. before using a motor vehicle on the road. In this country the compulsory cover is limited to liability for death of or bodily injury to third parties and was brought into force by the Road Traffic Act, 1930. It is not compulsory to insure against damage to property but in practice nearly all third party policies issued in respect of motor vehicles are in a standard form which covers both personal injury and damage to property. It should be noted that to comply with the Road Traffic Act, 1930, the motor I. policy has no limit to the amount which may be payable in respect of the death of or bodily injury to third parties. An important development in connection with compulsory motor I. was the formation on 1 July 1946 of the Motor Insurers' Bureau because there were still circumstances in which third parties injured in motor accidents were unable to recover damages to which they were entitled. The bureau ensures that each insurer will accept responsibility for dealing with claims although the insurer may for a good reason be entitled to repudiate liability under the policy. The bureau itself deals with those claims where there is no insurer and pays such claims from a fund obtained by levies on the insurers who are its members.

To keep pace with industrial development, motor I. has been subject to frequent changes in practice. There are many different kinds of motor vehicles in use and insurers have the following main divs. for the easier handling of the business:

(1) *Private type cars.* These are divided into 3 classes for rating purposes according to the extent of use. There is then further classification according to h.p., value, and the dist. in which the car is garaged.

(2) *Commercial motor vehicles.* The goods carrying type of commercial vehicle is rated according to carrying capacity, trade, and the dist. in which the vehicle is used. Premiums for other commercial vehicles, such as mobile cranes, excavators, bulldozers, and similar mechanically propelled plant depend on the purposes for which the vehicle is being used.

(3) *Agricultural and forestry vehicles.*

(4) *Motor trade vehicles.*

(5) *Motor cycles.* These are rated according to cubic capacity of engine and the dist. in which garaged.

All vehicles can be insured under any one of the following types of policy:

(a) *Comprehensive.* This gives the widest cover obtainable including loss of or damage to the insured vehicle and liability for accidental personal injury to or accidental damage to the property of third parties. Under private type car policies, passenger liability is automatically included together with other items such as personal accident benefits, medical expenses, and rugs, coats, or luggage.

(b) *Third party only.* This is for liability for accidental personal injury to or accidental damage to property of third parties. The indemnity is unlimited in amount except under commercial vehicle policies where the liability for damage to property is limited to £10,000 for any one accident.

(c) *Third party fire and theft.* This is the cover as provided under (b) with the addition of cover for loss of or damage to the vehicle by fire or theft.

(d) *'Act' liability only.* This is restricted to third party cover for personal injury claims as required by the Road Traffic Acts, 1930-4.

*Burglary insurance* is mainly concerned with indemnity for loss or damage caused by breaches of the criminal law. The basic form of policy restricts cover to theft following violent or forcible entry into the premises but in many cases it is possible by paying more premium to insure against larceny or accidental loss. Separate burglary policies on the contents of private houses are falling in number as the tendency is to take out a combined policy issued by the fire dept to cover fire, burglary, public liability, and various miscellaneous risks. Since 1946 the increase in crime has caused a considerable expansion in the number of policies issued for business premises. Rating depends on the nature of the stock and the area in which the premises are situated. A recent development has been the issue of policies to cover loss of profits following burglary and housebreaking. All risks policies can be obtained covering gold and silver articles, jewellery, furs, and other valuable items against accidental loss or damage as well as theft. Rates are high and a valuation is usually required. The I. of cash in transit is also dealt with in the burglary section. Such policies have been subject to considerable revision during the past few years and they can now include loss of money on the insured's premises as well as in transit. Miscellaneous classes of business dealt with in the burglary section are goods in transit I., cycle policies, golfers' policies, and baggage policies for travellers.

*Plate glass insurance* policies cover glass against breakage from any cause except fire, explosion, and war. All types of glass can be covered. For business

premises, the premium is calculated according to the area of the glass to be insured. For special glass such as stained-glass windows, the premium is a percentage of the value. For private houses, the premium can be charged either on rental or on the value of the house or contents.

*Fidelity guarantee insurance* provides protection in respect of the default of an individual whether he be an employee or an official acting in some special capacity such as a receiver, administrator, or trustee. Premiums are usually charged at a rate per cent on the amount to be guaranteed. Commercial fidelity guarantees are required by employers to protect them against loss of money as a result of the dishonesty of their employees in the course of their official duties. A policy can be arranged for an individual employee or a collective guarantee may be obtained covering a number of employees with a separate amount guaranteed in respect of each. Under another form of policy a floating guarantee is available in which the names of the various employees to be bonded appear but with one amount of guarantee over the whole. Court bonds are those issued in respect of those persons who are required to give security as a condition of their appointment by the Court to carry out official duties, e.g. administrators, receivers, and managers. Gov. bonds are issued where security has to be furnished by trustees in bankruptcy, liquidators appointed by the Board of Trade and persons or firms responsible to H.M. Customs and Excise for the payment of duties. Local gov. guarantees are issued in respect of employees in the service of urban dist., rural and par. councils, co. councils, and municipal corporations.

*Public liability insurance* provides an indemnity in respect of the legal liability of the insured for accidental personal injury to and damage to the property of members of the public caused by the negligence of the insured or of the insured's employees in the course of the insured's business or by defects in the premises, ways, works, machinery, or plant. In recent years substantial damages have been awarded to third parties, and this factor has been responsible for a considerable expansion in this class of I. Wide cover has also become available. Frequent review of this form of I. is necessary owing to law reform and legal decisions by the courts.

A general type of policy is used for offices, shops, warehouses, and manufacturing premises. Where the only liability to be covered is that arising from defects in the premises, a special property-owners' liability policy is issued. The oldest type of public liability I. is that of horse-drawn vehicles, but such policies are disappearing with the horses. Builders and contractors can have policies covering specified contracts but the general practice is to insure all work done during the period of I. and to pay premium according to the wages paid during that period. A special class of public liability insurance is that for professional indemnities. These protect

the policyholder against claims by the public arising out of professional negligence and are issued to accountants, architects and surveyors, chemists, dentists, doctors, I. brokers, and solicitors. Other special policies are issued for personal liability, petrol pumps, schools, sporting guns, cinemas and theatres, inns, hotels and boarding-houses, estates and farms. Cover for the private individual in respect of third party claims arising in connection with his own house is usually obtained under a combined policy issued by the fire dept. A comparatively new class of public liability I. is known as products liability. Originally the cover was mainly for food poisoning but it has been extended to apply to defective products of all descriptions. Cover is for accidental injury to persons or accidental damage to property caused by defects in the goods manuf., supplied, or repaired by the insured. The policies are available to manufacturers, wholesalers, and retailers.

*Contingency insurance.* Under this category special indemnity policies are issued indemnifying against claims by missing heirs or beneficiaries, claims under lost documents, and in respect of defects of title.

*Engineering insurance* has expanded considerably in view of statutory obligations, particularly the responsibilities imposed by the Factories Act, 1937. The object of engineering I. is to prevent accidents and breakdown by means of periodical inspection of the insured plant. Most of the premium is allocated to the cost of providing such inspections by staffs of engineer-surveyors. Boiler policies cover damage to the boiler, other property of the insured, and liability for personal injury to or damage to the property of third parties as the direct consequence of explosion or collapse of the boiler. Breakdown I. covers electrical plant, steam engines, pumps, oil engines and similar machinery against cost of repair or replacement. Cover can also be obtained to pay for losses sustained whilst the machinery is out of use. Special policies are also available for lifts, hoists, and cranes, refrigerating plant, talking-film apparatus, and machinery in transit or in course of erection.

Brit. companies effect a large accident I. abroad. This is a striking tribute to the prestige of Brit. I. houses. Recently there has been an increased demand for I. against disasters due to natural causes, such as hurricanes, and during the last few years heavy claims have been met respecting damage done by tornadoes in America.

*Agricultural insurance* is undertaken more extensively in America, Canada, and Europe than in the Brit. Isles. In America injury by tornadoes and hurricanes to growing crops causes most damage, and a special branch of I. is effected to cover this contingency, while hail damage comes next in consideration. In Canada hail damage is the risk most widely covered, and frost damage I. is in operation in both

countries, though more considerably in the U.S.A., where 88 companies issue such policies. *Live-stock insurance* forms an important part of agric. I. in the U.K., though it is usually undertaken in reference to pedigree stock, and is designed principally to cover animal diseases and compulsory destruction of such animals by order of the gov. in the case of foot and mouth disease.

See R. B. Walker and D. R. Woodgate, *Principles and Practice of Industrial Assurance* (2nd ed.), 1943; G. W. Gilbert, *Motor Insurance*, 1949; W. A. Dinsdale, *Principles and Practice of Accidental Insurance*, 1952; H. A. Young and P. D. Bacon, *Principles and Practice of Life Assurance*, 1952; T. R. Smith, *Fire Insurance Theory and Practice* (3rd ed.), 1954; H. A. Turner, *Principles of Marine Insurance* (3rd ed.), 1954.

**Insurance, National**, see NATIONAL INSURANCE ACT (1946).

**Intaglio**, strictly speaking, a gem on one surface of which a design has been hollowed out so that if this side is stamped upon some material like wax, the design is impressed and stands out in relief. I.s among the Assyrians and Babylonians were usually cylindrical in shape, like the chalcodony signet of Darius I of Persia, the workmanship of which is so justly admired to-day. The Egyptians used to cut their seals on the flat basis of the 'scarabeus' or sacred beetle—a form which is very common also in Gk I.s. Gem-cutters at first used serpentine, but as their skill increased they preferred to work in onyx and other harder stones. I.s exist of gods, mythical heroes, historical people, etc., the best dating usually from one of the first 3 cents. BC (see GEM).

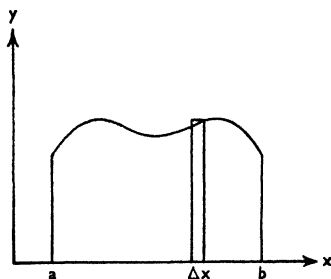
The term I. is used to describe engraving and printing processes in which the matter to be reproduced is below the general surface of the printing plate, e.g. in photogravure. The ink to be applied to the paper lies in the recesses of varying depth on the cylinders or metal plates. See COLOUR PRINTING.

**Integral Calculus**. The process of integration may be looked on as the inverse process to that of differentiation (see CALCULUS and DIFFERENTIAL CALCULUS). In the latter process, for a given function (q.v.) a second function is found giving the rate of change of the first function. Given the derivative of a function, the problem of integration is to reconstruct the original function. If  $dy/dx = w(x)$ , then we write  $\int w(x)dx = y(x) + C$ , where  $C$  is a constant (the significance of the integral symbol will be mentioned later). The constant  $C$  is undetermined since the derivative of any constant is always zero, and the derivative of  $y(x) + C$  is  $w(x)$ , whatever the value of  $C$ .

No general rule can be given for the integration of an arbitrary function, as was possible in the case of differentiation, but it is obvious that a familiarity with the differential calculus enables one to write down the integrals of many functions if they are recognised as the derivatives of some other known function. For

example, knowing that  $d/dx(x^3) = 3x^2$ , it can at once be said that  $\int 3x^2 dx = x^3 + C$ . An integral of this form is known as an indefinite integral. A definite integral between the limits  $a$  and  $b$  is written  $\int_a^b w(x)dx$ , and by this is meant the numerical value of the integral evaluated at  $x = b$  minus the numerical value at  $x = a$ . Thus:  $\int_a^b 3x^2 dx = (b^3 + C) - (a^3 + C) = b^3 - a^3$ . For example,  $\int_0^1 3x^2 dx = 1$ .

An example of the important class of problems that can be solved by the I. C. is the finding of the area enclosed by a given curve. If we wish to find the area



enclosed by the curve  $y(x)$ , the  $x$ -axis, and the ordinates erected at  $x = a$  and  $x = b$  (see Fig.), we divide the area into thin strips, of thickness  $\Delta x$ , by erecting ordinates along the  $x$ -axis. The area of one such strip,  $\Delta A$ , is given by the product of  $\Delta x$  and the average height of the strip, which may be taken as the value of  $y(x)$  evaluated at the mid-point of the strip, i.e.  $\Delta A = y \cdot \Delta x$ . To this approximation the total area required is the sum of all such elemental areas between the given limits. By taking a larger number of such strips, i.e. by making  $\Delta x$  smaller, a better approximation is achieved. The true value of the area is found in the limit as  $\Delta x$  tends to zero and the number of strips becomes infinite. In this limit the sum is written

$\int_a^b y(x)dx$ , where the limits of integration have been indicated. The integral symbol  $\int$  is in fact a medieval S, indicating summation.

The connection between this example and the previous discussion is seen by examining the expression  $\Delta A = y \cdot \Delta x$ , which may be written  $\Delta A / \Delta x = y$ . In the limit, as  $\Delta x$  tends to zero, this becomes  $dA/dx = y(x)$ . Thus given  $y(x)$  we are given the rate of change of  $A(x)$ , the area under the curve, and must re-construct the original function  $A(x)$ . The required area is then  $A(b) - A(a)$ .

For a detailed treatment of the methods and applications of the I. C. a standard text-book should be consulted, e.g. G. A. Gibson, *An Elementary Treatise on the Calculus*, 1901. We give below a table of the integrals of some standard functions. It should be noted that in each case an undetermined constant should be added to the integral, as described above.

$y(x)$	$\int y(x)dx$
$a$	$ax$ (a constant)
$x^n$	$x^{n+1}/n + 1$ ( $n \neq -1$ )
$1/x$	$\log_e x$
$\sin x$	$-\cos x$
$\cos x$	$\sin x$
$x \sin x$	$\sin x - x \cos x$
$\sin^2 x$	$\frac{1}{2}x - (\sin 2x)/4$
$x \cos x$	$\cos x + x \sin x$
$\cos^2 x$	$\frac{1}{2}x + (\sin 2x)/4$
$\tan x$	$\log_e \sec x$
$\tan^2 x$	$\tan x - x$
$\sin^{-1}(x/a)$	$x \sin^{-1}(x/a) + (a^2 - x^2)^{\frac{1}{2}}$
$\cos^{-1}(x/a)$	$x \cos^{-1}(x/a) - (a^2 - x^2)^{\frac{1}{2}}$
$\tan^{-1}(x/a)$	$x \tan^{-1}(x/a) - \frac{1}{2}a \log(a^2 + x^2)$
$a^x$	$(1/a)a^x$
$a^x$	$a^x/\log_e a$
$\log_e x$	$x \log_e x - x$
$\sinh x$	$\cosh x$
$\cosh x$	$\sinh x$
$\tanh x$	$\log_e(\cosh x)$

**Integration.** see INTEGRAL CALCULUS.

**Intellectual Co-operation, International Institute of.** In 1922 the League of Nations appointed a committee which should examine international questions on the subjects of literary, scientific, and artistic work with a view to I. C. whenever possible. The committee, which was likewise the governing body of the institute, consisted of 14 members, the member for the Brit. Empire being Prof. Gilbert Murray (q.v.). The Board of Directors met every 2 months. Such subjects as the unification of scientific nomenclature and the international organisation of bibliographical and scientific information were only two of the ambitious schemes of the organisation. Its place is now taken by the U.N. Educational, Scientific, and Cultural Organisation (see U.N.E.S.C.O.).

**Intelligence, Military, and Security.** That 'knowledge is power' is a maxim assiduously followed by all countries with respect to providing their military leaders with the most complete information available regarding all other states, particularly those which are potential enemies. Details of the military, economic, and other prin. resources of an enemy give valuable data upon which a plan of operations may be based. In peace this information can be obtained in many ways, e.g. the pub. statistics of a country, research by persons interested in various aspects of public life or particular areas of that country, spies, and general information contained in the press and journals. In war the difficulties, though greatly increased, are not insur-

mountable. Spies and persons of neutral countries are employed. These can supplement information procured by air reconnaissance, by the interception and decoding of enemy wireless messages, examination of captured equipment and documents, interrogation of prisoners, deserters, and escaped civilians, and reports from 'resistance groups' in occupied territories.

I. is vital to an army, but it is almost equally important to deprive the enemy of such I. as may be valuable to his military leaders. This is the responsibility of the Security branch, and includes censorship. If he cannot be wholly deprived of it, then false I. is usually supplied to him, which, in certain circumstances, is more effective than letting him have no information at all.

I. is a responsibility of the general staff at all levels. In the Brit. Army the I. dept. of the staff is organised in 2 branches, 'A' responsible for collecting, collating, and distributing information about the enemy and 'B' responsible for security. While the bulk of the information used by 'A' comes from the observation of its own forward troops of all arms, the special requirement of 'B' can only be served by special troops, organised in Field Security Sections which are under command of fighting formation and line-of-communication commanders. Both types of I. work are carried out by the I. Corps. This was embodied as a separate unit in July 1940, under the ultimate command of the Director of Military I. The navy and the R.A.F. also maintain I. depts.

**Intelligence Quotient (I.Q.),** see MENTAL TESTS.

**Intelligence Tests,** mental tests directed towards measuring an individual's all-round intellectual ability. Galton was one of the first to suggest the desirability of such tests, but he had no success in devising a practicable intelligence test. The first success in this field was the test scale of Binet and Simon from which modern I. T. have been derived. See also BINET-SIMON TEST and MENTAL TESTS.

**Intelligentsia,** the part of a nation that aspires to independent thinking. The term originated in Russia, where before 1917 it meant that part of the educ. society which held radical views. In contemporary Soviet Russia I. is the officially recognised stratum which includes non-manual workers above the clerical level.

**Intendant** (Lat. *intendens*, from *intendere*, to watch over), name given in early Fr. hist. to an official invested by the king with an important commission, such as the levying of taxes, the administration of financial matters generally, etc. The *intendants des provinces* date from the last 30 years of the 16th cent., and were sent by the king to restore order in the provs. after the civil wars. In 1789 the office was abolished by the National Assembly, but the dignity was restored by Napoleon under the title of 'prefect.' See G. Hanoaux, *Origines de l'institution des intendants des provinces*, 1884.

**Interamna Nahars,** or **Interamna Umbra,** see TERNI.

**Interborough Rapid Transit Company**, see NEW YORK CITY TRANSIT SYSTEM.

**Interbourse Securities**, stocks and shares bought and sold on the London Stock Exchange, Wall St, the Paris Bourse, and other stock exchanges. The best examples of such securities are gov. stock or shares, like Gk or Brazil bonds (but not Brit. Consols, which are held almost exclusively by people in the U.K.), large gov. loans, Amer. railway bonds, and E. Indian securities. The business of negotiating the sale or purchase of I. S. is done by arbitrage dealers, who purchase or sell on one stock exchange and simultaneously re-sell or re-purchase in another country similar stocks or shares of an amount to cover not only the incidental expenses of interest, commission, etc., but also brokerage. The great benefit of this arbitrage traffic is the equalisation of and stability in the prices of I. S.

**Interbred Retriever**, see RETRIEVER.

**Intercalary Days, or Months**, term given to months or days inserted in the calendar between others to adjust the reckoning of the year into agreement with the solar year. The word 'intercalary' thus means something inserted or placed between, and is used for anything interrupting a series.

**Intercolumniation**, in architecture, the spacing of columns.

**Interconnection of power stations and distribution networks** aims at safety of supply and economy of working. Each generating station is connected to a transformer station where the voltage is stepped up to the value suitable for long-distance transmission. The high-voltage transmission network is connected to regional substations where the voltage is again stepped down for primary (regional) distribution to further substations for local low-voltage supply. Substations have duplicate busbars, so that if supply from one line fails, distribution can be switched to another line. A power station works most economically on full load. When load demand decreases, some power stations shut down; the remaining ones take over the whole supply. The working is controlled from a control room, where a luminous diagram shows, at any instant, the state of the network, switch positions, voltage, current, power, in the various sections, and generators working. See DISTRIBUTION, ELECTRIC POWER; ELECTRIC SUPPLY; GRID SYSTEM.

**Intercoastal Neuralgia**, see NEURALGIA.

**Interdict**: 1. *In Scots law*: Like the I. in Rom. or civil law, and the injunction (q.v.) of Eng. law, the I. in Scots law is a decree or order of the court to restrain any act or proceedings alleged to constitute an infringement or threatened infringement of another's rights. Like injunctions, I.s are either interim or final. An I. may be granted by the Court of Session, or the sheriff courts, or, in rare cases, by the inferior or burgh courts. For illustrations of the matters in which an I. may be obtained see INJUNCTION.

2. *Ecclesiastical law*. Form of eccles. censure applied by the medieval popes, not, like excommunication (q.v.), to a

person, but to a region or whole kingdom on account of its ruler's defiance of the Holy See. Churches were closed, and no sacrament other than baptism might be administered, except viaticum *in articulo mortis*. There were no marriages and no burials with religious rites; and since the Church at that time performed the functions of a modern registrar, the bases of legal existence were threatened. The purpose behind I. was that public resentment would bring the offending monarch to his senses or end in rebellion; but this consequence did not always follow. England in the reign of John, and France in that of Philip Augustus, were both laid under I. by Pope Innocent III.

**Interest**, the price paid for the hire of money or capital. The rate per cent annum is the I. on 100 units for 1 year. I. is either simple or compound: the former being payable on the principal alone, the latter on the amount of the principal and I. as and when it falls due. The exaction of I. was prohibited in England as early as 1197, and the prohibition rested, as elsewhere, upon religious grounds. The old usury laws fixed a maximum rate of I., varying at different times from 10 to 5 per cent, long after everyone had been convinced that the most entire freedom in commercial matters was both the right of the private individual and the benefit of the community. Bentham was the first writer who openly and systematically condemned the usury laws, and since he wrote no legislature has ventured to do more than regulate the status of moneylenders by registration. Bentham, like Mill, ascribed the usury laws to religious bigotry. Aristotle's condemnation of usury rested on the assumption that 'money is in its nature barren,' and that I. was the productive addition to an unproductive object, which view became traditional and is quoted in Bastiat's works as a popular fallacy among socialists. An elaborate refutation of the dogma that free access to the money market tends to encourage projectors is also one of the most trenchantly successful criticisms in the *Defence of Usury*. All restrictions have been long since abandoned by the legislature, and the rate of I. left to the discretion of lenders and borrowers; but the courts may interfere on equitable grounds to prevent fraud and overreaching, and loans to infants are invalid (see CONTRACT and INFANT). Under the Moneylenders Act, 1900, the courts may reopen moneylending transactions of a 'harsh and unconscionable nature' and reduce the rate of I. Under the Moneylenders Act, 1927, compound I. on loans by moneylenders is prohibited, nor may the contract provide for the rate or amount of I. being increased by reason of any default in the payment of sums due under the contract. But the contract may provide that if the borrower makes default whether in respect of principal or I., the moneylender shall be entitled to charge simple I. on the sum due from the date of the default until the sum is paid, at a rate not exceeding the rate payable in

respect of the principal apart from any default.

It is an economic commonplace that the rate of I. is the same in all trades in the same country and at the same time. But the risk in some occupations being greater, there must be differences in the rate of I. or profits in different trades at the same time. Some economists teach that as wealth and pop. increase the rate of I. declines, because, among other causes, wealthy and populous communities afford less and less scope for any given quantity of labour and capital. Although building societies and banks determine their I. rates without any legislative regulation, these are in practice geared to the bank rate (q.v.) in force for the time being. *See also* MONEYLENDER and USURY. *See* J. Bentham, *Defence of Usury*, 1790; I. Fisher, *Theory of Interest*, 1930; J. Meado, *Rate of Interest in a Progressive State*, 1933; K. Wicksell, *Interest and Prices*, 1936.

**Interference**, term which in physical science indicates a phenomenon depending upon the action at 1 place of 2 sets of waves or vibrations. A familiar example which can be used to illustrate this is obtained by dropping 2 stones into a still pond at the same time. Circular ripples will be set up from each stone, and will eventually meet, causing disturbance. It is almost axiomatic that the greatest disturbance will occur when trough meets trough, or crest meets crest. And were the waves set up by the dropping of each stone equal in amplitude, then when crest met trough, or vice versa, the wave motion would be entirely annihilated. It can be seen, therefore, that it becomes a fundamental principle in the science of light, sound, and electricity in particular. In these cases, however, the waves are usually too small for I. to be detected or observed by the senses, unless there is a continual succession of the 2 waves, reproducing the phenomenon at the same place for a long while. Thus in light it is necessary, in order to study I. effects, to obtain 2 sources which are identical in wavelength and in phase, i.e. their wave-forms are in step. A simple experiment demonstrating I. in light is that known as Grimaldi's, as modified by Young. A simple ray of light, which we shall regard as homogeneous, is introduced into a darkened chamber, through 2 small apertures which are close together and act as the 2 identical sources. These 2 divergent rays will interfere, with the result that on the screen opposite will be shown a series of bright bands separated by dark ones. The central one, which is the brightest, is placed so that all points on it are equidistant from each aperture, and is formed by the meeting of crest with crest and trough with trough. Theoretically the series of I. bands is composed of an indefinite number, but the fading away in brightness of those bands in practice is explained by the great difficulty of obtaining pure homogeneous light. *See* DIFFRACTION; ELECTRICITY, *Electro-magnetic Waves and Maxwell's Theory*;

NEWTON; NEWTON'S RINGS; POLARISATION OF LIGHT; SOUND; SPECTRUM.

**Interferometer**. Optical instrument for producing interference fringes by the superposition of 2 beams of light originating from the same source, and for measuring the displacements of such fringes caused by a slight increase of path difference between 2 beams. The I. is the most accurate instrument for the measurement of the wavelengths of light. Michelson's and Fabry and Perot's I.s are the best-known instruments. The principle of the former has been applied since 1920 to the measurement of the angular diameter of some stars that were not near enough to be resolved by the most powerful telescopes then known. Another I. is Rayleigh's, which is used for measuring small differences in the refractive indices of gases. *See also* INTERFERENCE and SPECTRUM and SPECTROSCOPE. *See* C. Candler, *Modern Interferometers*, 1951, and S. Tolansky, *An Introduction to Interferometry*, 1955.

**Interim** (Lat. 'in the meantime'), name given during the Reformation to certain attempts made in Germany to draw up a formula which would serve as a basis of agreement between Catholics and Protestants, until such time as a general council could be held. Two major attempts were made to bring this about, resulting in the 'Ratisbon Interim' in 1541, and the 'Augsburg Interim' (q.v.) in 1548.

**Inter-Imperial Relations Report**, report of a committee of Prime Ministers and heads of delegations to the Imperial Conference presided over by Lord Balfour, unanimously adopted by the Imperial Conference of 1926. It states that equality of status is the root principle governing inter-imperial relations so far as concerns Great Britain and the dominions, which are described in the report as 'autonomous communities within the Brit. Empire, equal in status, in no way subordinate one to another in any respect of their domestic or external affairs, though united by a common allegiance to the Crown, and freely associated as members of the Brit. Commonwealth of Nations.' (Cmd. 2768.) *See* DOMINION STATUS and WESTMINSTER, STATUTE OF. **Interior Decoration**, *see* PAINTING AND DECORATING.

**Interlaken** ('between the lakes'), in the canton of Bern, Switzerland, a health resort much frequented by visitors, with an elevation of about 1863 ft. It is 26 m. SE. of Bern, between Lakes Thun and Brienz, on the R. Aar. It has magnificent mt scenery, the Hüheweg commanding a fine view of the Jungfrau. Pop. 4300.

**Interlineations**, in law, additions to or alterations of a written instrument made either before or after the execution of the instrument. As a rule, I. made after execution having the effect of altering or amending the instrument in a material particular will prevent the enforcement of any rights created under the instrument. It is otherwise with I. made before execution, provided they were made with the consent of parties whose rights are affected

by the instrument. The rule of evidence is that I. on the face of a deed are, in the absence of evidence to the contrary, presumed to have been made prior to execution; but in a will I. are presumed to have been made after the testator signed his will. I. which do not affect the rights of parties who are under any liability created by the instrument are immaterial. I. made in a will should always be signed and attested, as in the case of the body of the will; and a similar precaution should be observed in regard to those made in a deed or other instrument.

**Interlocutor**, in Scots law, strictly a judgment or judicial order pronounced in the course of a suit, which does not finally determine the issue (cf. INTERLOCUTORY PROCEEDINGS). But in practice it appears to be applied to all judgments or orders of the court, whether they finally dispose of the case or not.

**Interlocutory Proceedings**. Applications or motions before a judge, master, or dist. registrar in chambers for some preliminary order, decision, or judgment in an action are called I. P. An order made in I. P. does not finally dispose of the case, but, as a rule, decides some matter incidental to the proper conduct of an action. Interim injunctions (see INJUNCTION), however, although not final, have the effect of final judgments if at the trial it is established that a proper case has been made out for an injunction. Application in chambers must be made by summons, or by notice of application under the summons for directions or summons which asks the master to give directions as to the future conduct of proceedings in such matters as discovery of documents, pleadings, etc.), unless made *ex parte*, when no such formality is required. Applications to the court are made by motion, and, as a rule, at least 2 clear days' notice of motion must be given, unless the court gives leave to the contrary.

**Interlude** (Lat. *inter*, between; *ludus*, play), short piece or musical piece performed between the acts of a play or between the verses of a hymn. In drama a short performance given between the parts of a play or in the intervals of a banquet or court pageant. The characters were as a rule merely personified qualities such as Mercy and Youth. This kind of stage production, as well as moralities and mysteries, succeeded the older miracle plays, and in the early part of the 16th cent., with such plays as those of Udall and Sackville (qq.v.), kept the dramatic field until the appearance of the new school created by the Elizabethan dramatists. John Heywood (q.v.) wrote I.s and introduced a notable change into his characters by making them represent types and classes of men, such as pedlars and friars, instead of qualities. His best-known piece is *The Four P's*, 1569. The I. was revived for a time when plays were prohibited under Cromwell.

**Intermarriage**, see CONSANGUINITY and MARRIAGE.

**Interment**, see BURIAL ACTS and BURIAL CUSTOMS.

**Intermezzo** (It., 'interlude'), originally a scenic musical piece, then called *intermedio* in Italian, to serve as a diversion at a festivity; later a comic opera for 2 or 3 characters interspersed between the acts of a serious one, cultivated in the 18th cent., but dying out during its second half. Afterwards I. became a title for short pieces, especially for the piano (e.g. Schumann and Brahms); also for an instrumental piece played in the course of an opera, as in Mascagni's *Cavalleria rusticana*.

**Intermittent Fever**, see MALARIA.

**Internal-Combustion Engine** is one in which the chem. energy latent in the fuel is released by combustion or explosion in the engine itself instead of being converted in a furnace into heat used to generate steam in a boiler. The expansion of the gases produced by the combustion constitutes the mechanical driving force acting directly on the piston in the reciprocating engine or the blades in the gas turbine. In the simplest of all I.-C. E.s, the rocket motor, the gases escape through a nozzle at the rear end and the reaction or recoil on the body of the rocket drives it forwards. In actual practice, the term I.-C. E. covers the reciprocating (cylinder and piston) type only. The gas turbine (see AERO-ENGINES) is of recent origin and is at present being actively developed in connection with jet propulsion of aircraft, and for use in locomotives, motor cars (q.v.), and as prime mover in electric power stations. The reciprocating engines are conveniently classified, according to the fuel used, as oil engines (see DIESEL ENGINES) using heavy oil, petrol engines (see MOTOR CARS) using light oils, and gas engines (q.v.) using gaseous fuels. No heat engine can convert into mechanical work more than a fraction of the heat content of the working substance (see THERMODYNAMICS). In I.-C. E.s the working substance is the fuel, mixed with air since no fuel can burn except in contact with air. The thermal efficiency of an engine is the fraction of the heat input which is converted into mechanical work; it varies according to the type of engine and is largely dependent on the compression ratio, which is the ratio of the cylinder vol. above the piston when at its lowest position (expansion) to the vol. above the piston at its highest position (compression; clearance or combustion space). The calorific value of a fuel is the amount of heat (in B.Th.U.) liberated by combustion of 1 lb. of liquid or 1 cub. ft. of gas fuel (see Brit. Standard Specification, 526). The gas fuels in common use are:

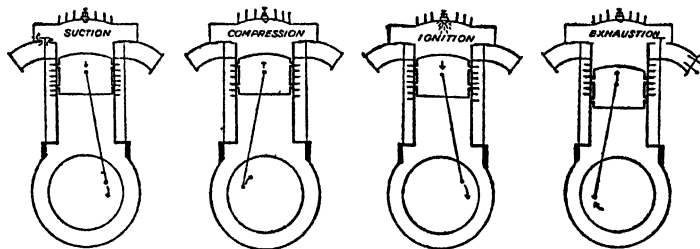
		B.Th.U. cub. ft.
Natural gas	. cal. value 700-1500	
Coal (tn) gas	. " "	400-500
Producer gas	. " "	164
Blast-furnace or Coke-oven gas	. " "	100

Oil fuels are liquid mixtures of hydrocarbons (compounds of hydrogen and carbon in various ratios) mostly obtained by fractional distillation of petroleum. The



light oils (gasoline fraction, petrol) of sp. gr. 0.68–0.78 have a boiling-point of 40°–200° C., calorific value 19,000 B.Th.U. lb. They may also be obtained by 'cracking,' a chemical process whereby higher-boiling fractions are broken into lower-boiling compounds. Benzol is obtained by distillation of coal tar and consists mostly of pure benzene. Heavy oils have a sp. gr. 0.78–1 and boiling-point above 275° C. Coal hydrogenation and coal and coal oil distillation also yield both light and heavy oils, and these processes are likely to become of great importance in the future. Besides the calorific value, the 'anti-knock' value of a fuel is a most important characteristic. When the compression ratio exceeds a certain limit, the fuel detonates on ignition instead of burning with a steadily progressing flame, and this 'knocking' results in excessive wear of all

by the engine itself through the camshaft. In the gas engine the mixture of gas and air is sucked into the cylinder at nearly atmospheric pressure during the induction, the inlet valve being open, the exhaust closed. As the piston begins to rise, the inlet is also closed, the mixture being compressed. When the piston approaches its highest position the mixture is ignited, usually by an electric spark, and the expansion of the combustion products drives the piston down. Just before it reaches the bottom the exhaust opens and the rising piston sweeps the burnt gases out (scavenging). The cycle is then repeated. Some engines, especially of smaller size (1–8 h.p.), work on the 2-stroke principle. As the piston rises on the compression stroke a fresh charge is drawn into the crankcase, and when the piston descends on the power stroke the charge in the



THE OTTO CYCLE

moving parts. The anti-knock value of a light oil fuel is expressed in its octane number, i.e. the percentage vol. of *iso*-octane in a mixture of *n*-heptane and *iso*-octane having the same knock tendency as the fuel in question. The higher the octane number of a fuel, the higher is the compression ratio that can be used without knocking. Generally, the compounds with the most compact molecule (unsaturated and aromatic hydrocarbons) have the higher octane numbers, while the paraffins are less good. The light oils obtained by cracking have higher octane numbers than those obtained from straight-run distillation. By addition of 'dopes,' certain chemicals such as lead tetraethyl, the octane number may be increased. The heavy oils are characterised by their cetene number, the percentage of cetene in a mixture of cetene and  $\alpha$ -methyl-naphthalene producing the same ignition lag.

Most I.-C. E.s work on the 4-stroke cycle, i.e. power is supplied to the piston during 1 out of every 4 strokes, the fly-wheel keeping the engine running during the remaining 3. This cycle was first successfully applied to the gas engine by N. A. Otto (1876). The strokes are known as induction, compression, expansion (power), and exhaust. The cylinder is provided with inlet and exhaust valves at the top end, the opening and closing of which are accurately timed and operated

crankcase is compressed. Towards the end of the power stroke the piston uncovers a port in the cylinder wall connected with the crankcase through a bypass, through which compressed charge enters the cylinder sweeping the burnt gases out through an exhaust port, likewise uncovered by the piston. A ridge on the top of the piston guides the entering charge towards the top of the cylinder and prevents its being mixed with the exhaust gases. Thus the compression stroke is also an induction stroke and the power stroke is also a compression stroke. The 2-stroke engine has no valves and is simpler in construction, but owing to imperfect scavenging and loss of fuel, it is less efficient than the 4-stroke engine. In the petrol engine the volatile liquid fuel is broken up into a fine mist and mixed with the correct proportion of air in the carburettor (q.v.). Thereafter the engine behaves as a gas engine. In the modern compression-ignition (heavy oil) engine, first practically realised by Rudolf Diesel (1892), pure air only is drawn into the cylinder on the induction stroke, and this is compressed to about 400–600 lb. sq. in. whereby the temp. rises to 1000° F. At the end of the compression stroke the oil is injected into the cylinder under high pressure (solid injection), through a fine nozzle, and ignites on coming into contact with the hot air. Expansion and exhaust

follow as for the other I.-C. E.s. The oil engine has a higher thermal efficiency than the petrol engine, 30-36 per cent as against 22-25 per cent, the compression ratio being of the order of 12-16 as against 5-6 in the petrol engine. It exerts a higher torque at slow speeds, the fuel is less easily inflammable and so fire risks are less. The oil is also less volatile and loss through evaporation is insignificant. On the other hand, the oil engine is heavier in weight per horse-power, it is not as smooth in running at low load, and has not the accelerating characteristics of the petrol engine. Oil engines are now built for speeds of 1000-2000 rev./min. whereas petrol engines are available for speeds up to 6000 rev./min. Superchargers are used occasionally on all types of I.-C. E.s to raise the pressure of the injected air above atmospheric pressure. They are compressors driven through gears by the engine or driven by exhaust-gas turbines. Centrifugal fans are used, sucking in the air near the shaft and throwing it out at high pressure near the rim. See J. Okill, *Internal Combustion Engines*, 1922; J. Lamb, *Running and Maintenance of the Marine Diesel Engine*, 1939; H. R. Ricardo, *The High-Speed Internal Combustion Engine*, 1941; S. J. Young and R. W. Pryer, *The Testing of Internal Combustion Engines*, 1944; E. T. Vincent, *Supercharging the Internal Combustion Engine*, 1948; H. E. Wimperis, *The Internal Combustion Engine*, 1949.

**Internal Conversion**, see BETA PARTICLES and GAMMA RAYS.

**Internal Security Act, United States.** Passed by Congress over the President's veto, 23 Sept. 1950, and amended in 1951, 1952, and 1954, the Act consists of 2 parts: Part I, the Subversive Activities Control Act, and Part II, the Emergency Detention Act. Part I classifies Communist organisations, creates the Subversive Activities Control Board to identify such organisations, deals with conspiracy and the transmission of secrets to foreign agents, broadens espionage and sabotage laws, and requires the registration of foreign agents. Part II stipulates that the President may proclaim an internal security emergency in the event of invasion of the U.S.A., or any of its possessions, declaration of war by Congress, or insurrection within the U.S.A. in aid of a foreign enemy; it also provides for the detention of persons suspected of conspiracy for espionage or sabotage.

**International**, an association of national Labour or Socialist parties. The First I.—the I. Working Men's Association—was formed in 1864 in London by Marx and Engels. But it came before national Labour movements had been organised, and it collapsed in 1872.

The Second I. was formed in 1889. It was based on the Labour or Socialist parties of Denmark, Germany, Spain, Belgium, Austria, Switzerland, and Sweden. These parties were reformist and looked to parl. rather than to revolutionary measures to achieve their aims. Among the leaders of the I. were Branting,

MacDonald, and Stanning, all of whom became Prime Ministers. The I. gained strength as Socialist parties were formed in Britain (Independent Labour Party), Italy, Poland, Holland, and Hungary. But it collapsed at the outbreak of the First World War in 1914.

The Third I. (Comintern) was formed in Moscow by Lenin and the Bolsheviks in 1917. It comprised the Communist elements which had been excluded from the Second I. Lenin proclaimed its aim to be world revolution. Communist parties of each country received direct instructions from the Bureau of the I.

In 1923 the Labour and Socialist parties which did not accept the Communist philosophy of revolution and political dictatorship re-formed the Second I. as the Labour and Socialist I. By 1931 it comprised parties from nearly every country in Europe. But Fascism in Italy, Germany, Spain, and elsewhere eliminated sev. Socialist parties. The executive of the I. continued to meet until 1939, but the I. ceased to function after the fall of France in 1940, the Brit., Swedish, and Swiss parties being the only survivors.

After the Second World War, frequent meetings of Socialist parties from Europe and other parts of the world were held and liaison machinery was estab. There was dissension between the W. European parties, which welcomed the Marshall Plan, and the E. European parties, which opposed it. In 1948 the Socialist or Labour parties collaborating with, or accepting absorption by, the Communists were expelled. The remaining Socialist parties professing democratic principles also differed among themselves on European federation. But in 1951 the Socialist I. was formed. It is the descendant of the Second I. The Congress of the Socialist I. meets at least once every 2 years, and its council at least twice a year. The Socialist Union of Central-E. Europe, formed in 1949 by exiled parties from Bulgaria, Czechoslovakia, Estonia, Hungary, Latvia, Lithuania, Poland, Rumania, Ukraine, and Yugoslavia, is affiliated to the Socialist I. and is represented at its council meetings. The Secretariat of the Socialist I. was estab. in London. The I. maintains close liaison with the Asian Socialist Conference, estab. at Rangoon in 1953. By 1955 the I. comprised 40 parties with a total membership of nearly 10 million. It has become nearly world wide. See K. Marx and F. Engels, *Manifesto of the Communists*, 1886; N. Bucharin, *Progress of World Revolution*, 1920; J. Joll, *The Second International*, 1955; S. Rose, *The Socialist International*, 1955; *Year Book of the International Socialist Movement*, 1957.

**International Affairs**, see ROYAL INSTITUTE OF.

**International African Institute**, an international, independent, and unofficial organisation concerned with the study of African languages, cultures, and social systems (both the traditional structures

and the changes and tensions to which they are subjected at the present day), founded in 1926 under the chairmanship of Lord Lugard. The range of its interests extends over the whole of Africa S. of the Sahara. It offers research fellowships for field studies in Africa and its fellows have carried out investigations in many African territories. The institute publishes monographs and memoranda on a wide range of topics relating to African ethnology, linguistics, and various aspects of the life and culture of African peoples; its journal, *Africa*, published quarterly, is supplied free to subscribing members. *African Abstracts*, also quarterly, contains abstracts from current periodicals concerned with African studies. The institute's reference library and information services are available to members and students. Its London office is at St Dunstan's Chambers, 10-11 Fetter Lane, Fleet St, London, E.C.4.

**International Bank for Reconstruction and Development**, commonly known as the 'World Bank,' was established by the U.N. Monetary and Financial Conference held at Bretton Woods (see BRETON WOODS AGREEMENT), U.S.A., in July 1944. Its function is to 'assist in the reconstruction and development of members by facilitating the investment of capital.' In 1955 it had 58 member countries, a subscribed capital of \$9,050,500,000, reserves of \$195,000,000, and operated at a profit. An Act giving effect to the Bretton Woods Agreement in the U.K. was passed in 1945. The bank may operate either by making or participating in direct loans out of its own funds, or out of funds raised in the market of a member, or otherwise borrowed, or by guaranteeing loans made by private investors.

The bank is controlled by a board of governors, executive directors, who are responsible for the conduct of the bank's general operations, and a president. Its first loan was \$250 million to France in May 1947. This was followed in Aug. 1947 by 3 more loans to Europe—\$195 million to the Netherlands, \$40 million to Denmark, and \$12 million to Luxembourg. After that the pace of lending decreased and only 2 small loans were made in 1948—\$16 million to Chile for hydro-electric development and agricultural machinery, and \$12 million to 4 Dutch shipping companies to buy ships in the U.S.A. In Jan. 1949 \$34 million was lent to Mexico and \$75 million to a Brazilian traction, light, and power company, both largely for hydro-electric schemes. By the end of 1948 the European situation had disintegrated so far that the European Recovery Plan (E.R.P.) had taken the place of reconstruction loans from the bank as the source of European reconstruction. In the early stages of the discussion of the Marshall Plan (see EUROPE, History) it was expected that the bank would be able to supplement the E.R.P. grants with loans for specific projects. But as E.R.P. developed, the possibility of any significant bank lending to Europe during the 4 years of the programme declined. The difficulties of divided responsibility

for the financing of European recovery made it unlikely that the hopes entertained would be realised until the Marshall Plan period ended in 1951. With one of its original functions (loans for reconstruction) taken over by the U.S. Gov., the bank turned from reconstruction to development. But at first it was unable to find as many projects ready for financing as it would have liked to handle, while other promising projects took longer to put into shape than expected. One defect lay in the lack of provision for technical assistance. Not only were the countries of S. America and parts of Africa, Asia, and the Middle E. underdeveloped but they were also so short of technicians that they were unable to prepare schemes in such a form as to make it possible to appraise their prospects without much additional work for which the bank was not equipped.

Most of the money made available by the bank has been dollars. The flow of dollars, although initially small compared with the flow of sterling from London before the war when Britain was the leading lender of the world, has nevertheless been increased in the 1950's. The bank must confine its loans to projects in which a return can be earned, and it must also avoid competition with private lenders. It can only be a creditor, not a shareholder. These are additional limitations of its scope. And it is for the future to reveal what role the bank will play. This role may be greater than once seemed possible, because in Oct. 1955 the bank established a new organ, the International Finance Corporation, which has wider powers than the bank itself.

To view the achievements and the role of the bank in perspective it is necessary to consider the circumstances in which it was formed and operated. The bank, like the International Monetary Fund and the General Agreement on Tariffs and Trade, was an institution established after the war and designed to be of permanent use for the re-creation of a world economy. Since world recovery has not been as great or as early as was hoped for, these institutions exist to a large extent on paper and have not yet come into full working order. This fact explains also why the semi-permanent and semi-emergency organisations, the Organisation for European Economic Co-operation, the European Payments Union, and the Sterling Area itself, have been so important in the period of post-war reconstruction. As economic recovery returns and exchange controls and other forms of discrimination in international trade are removed, these temporary organisations will tend to become less important and the more permanent ones will take their place. See INTERNATIONAL MONETARY FUND.

**International Chamber of Commerce**, see CHAMBER OF COMMERCE, INTERNATIONAL.

**International Court of Justice**, in all essentials, is the old Permanent Court of International Justice under a new name.

Its Statute, which forms part of the Charter of the U.N. (q.v.), is the statute of the Permanent Court with a few unimportant changes, and contains provisions designed to ensure continuity between the two.

Like the old court, the new contains 15 judges of different nationalities, elected for a 9-year term by simultaneous voting in the Security Council and the General Assembly, which in this context succeed to the functions of the Council and Assembly of the defunct League of Nations. The Statute also contains

bly of the League, was formally opened 15 Feb. 1922, and held its first session 15 June 1922, in the Peace Palace at The Hague. The charter of the court was founded on the scheme provided by Article 14 of the Covenant of the League of Nations (q.v.). Some notable cases to come before the court were the *Wimbledon* (1921), a dispute between France and Germany over a vessel which was carrying munitions for Poland through the Kiel Canal; the *Mavromatis Concessions* (1924-5), a case between Greece and



THE INTERNATIONAL COURT OF JUSTICE

*Planet News*

The scene at The Hague on 26 Feb. 1948, when the hearing was opened of Britain's case against Albania over the mining in the Corfu Channel of two British destroyers in October 1946.

similar provisions for safeguarding the independence of the judges, e.g. that they may not exercise any political or administrative office or practise a profession. They are removable only by a unanimous vote of their own colleagues on the bench. Prior to the First World War there had existed a convention for the creation of a permanent court, but it remained in abeyance because the conference of 1907 could not agree on the method of appointing judges. Thus the only previous provision for settling international disputes was by way of arbitration, a method which, while effective to meet the demands of a particular and momentary situation, lacked the essential qualities of a tribunal proceeding according to precedent and systematised methods. It therefore did but little to develop international law. The Permanent Court of International Justice was constituted during the Second Assem-

Great Britain relating to concessions in Palestine; a dispute between Bulgaria and Greece involving the interpretation of the treaty of Neuilly (1924); and the court also had a long list of advisory opinions to its credit, the most notable being the Mosul dispute (1925) between Great Britain and Turkey over the Iraq N. boundary. (See also MOSUL.)

Only states may be parties to the I. C. of J., but though individuals have no direct access, a state may take up the claim of its national, and in international litigation this is a familiar kind of case. As in the Permanent Court, the submission of cases is still voluntary, but the so-called 'Optional Clause' (q.v.) has been incorporated in the new statute. Under this states may declare in advance their willingness to recognise the court's jurisdiction as compulsory in relation to any other state accepting the same obligation,

whenever a dispute falls under certain heads, the most important being the interpretation of treaties and questions of international law. Under the old statute acceptances of this clause were numerous, and where these are still in force they are deemed acceptances under the new statute, subject to such reservations as existed previously. But acceptance of the Optional Clause does not create a truly compulsory jurisdiction; it means merely that a state has agreed that in certain circumstances it will allow itself to be sued without the necessity for concluding a special agreement after an actual dispute has arisen. The question of a truly compulsory jurisdiction for the court remains the most controversial issue of its future (Prof. J. L. Brierly). The new statute expressly states, what was implicit in the old, that the function of the court is to decide the disputes submitted to it in accordance with international law. Conventional language describes disputes which a court can decide as 'justiciable' and those which it cannot as 'non-justiciable,' misleading terminology because any dispute is justiciable if the parties choose to make it so, it being for the court to decide whether or no any particular claim is well founded in law. Generally speaking it is evident that political methods of settlement will always be necessary internationally just as they are nationally, and the judicial method can never replace them.

The court itself has no means of enforcing its judgments; but all the members of the U.N. have bound themselves to comply with its judgments, and Article 94 of the charter provides that if a party fails to obey a judgment against it the Security Council may 'make recommendations or decide upon measures to be taken to give effect to the judgment.' What sort of measures or sanctions the Council could put into force, and what would be the precise effect of its 'decision,' is left uncertain.

**International Date, or Calendar, Line,** the line where the change of date occurs. It is a modification of the 180th meridian, and is drawn so as to include islands of any one group on the same side of the line, and to allow for political considerations. It is indicated by joining up the following 9 points:

<i>Latitude</i>	<i>Longitude</i>	<i>Latitude</i>
60° S.	180°	15½° S.
51½° S.	180°	5° S.
45½° S.	172½° W.	48° N.

When crossing this line on a westerly course, the date must be advanced one day; when crossing it on an easterly course, the date must be put back one day.

**International Friendship League,** voluntary and non-political organisation to promote, through travel, friendship and toleration among the peoples of the world. The H.Q. of the Brit. section is at 3 Cromwell Rd. S. Kensington.

**International Institute of Intellectual Co-operation,** see INTELLECTUAL CO-OPERATION.

**International Labour Organisation,** estab.

1919 as an autonomous institution associated with the League of Nations (q.v.). The original constitution of the I.L.O. was adopted as Part XIII of the treaty of Versailles (q.v.).

The 26th General Conference held at Philadelphia in 1944 restated the aims and purposes of the I.L.O. in the declaration of Philadelphia, which was later incorporated in I.L.O.'s constitution. The conference reaffirmed the fundamental principles on which the organisation is based, and cited in particular that: labour is not a commodity; freedom of expression and of association is essential to sustained progress; poverty anywhere constitutes a danger to prosperity everywhere; the war against want requires to be carried on with unrelenting vigour within each nation, and by continuous and concerted international effort in which the representatives of workers and employers, enjoying equal status with those of govts., join with them in free discussion and democratic decision with a view to the promotion of the common welfare.

The specific objectives of the I.L.O. set forth in the declaration include: (a) full employment and the raising of standards of living; (b) the employment of workers in the occupations in which they can have the satisfaction of giving the fullest measure of their skill and attainments and make their greatest contribution to the common well-being; (c) the provision, as a means to the attainment of this end and under adequate guarantees for all concerned, of facilities for training and the transfer of labour, including migration for employment and settlement; (d) policies in regard to wages and earnings, hours and other conditions of work calculated to ensure a just share of the fruits of progress to all, and a minimum living wage to all employed and in need of such protection; (e) the effective recognition of the right of collective bargaining, the co-operation of management and labour in the continuous improvement of productive efficiency, and the collaboration of workers and employers in the preparation and application of social and economic measures; (f) the extension of social security measures to provide a basic income to all in need of such protection

<i>Longitude</i>	<i>Latitude</i>	<i>Longitude</i>
172½° W.	52½° N.	170° E.
180°	65° N.	169° W.
180°	70° N.	180°

and comprehensive medical care; (g) adequate protection for the life and health of workers in all occupations; (h) provision for child welfare and maternity protection; (i) the provision of adequate nutrition, housing, and facilities for recreation and culture; (j) the assurance of equality of educational and vocational opportunity.

In 1946 the I.L.O. became a specialised agency associated with the U.N. (q.v.). The machinery of the organisation consists of the International Labour Conference, the governing body, and the

**International Labour Office.** The International Labour Conference, which is the supreme body of the I.L.O., constitutes a world forum for labour and social questions. National delegations to the ann. meetings comprise 4 delegates, 2 representing the gov., 1 representing management, and 1 representing labour. The representatives of management and labour are nominated by the govts. in agreement with the industrial organisations which are most representative of employers and workers in their respective countries. Each delegate speaks and votes independently, so that all points of

building up employment services, increasing productivity, the development of training facilities, and the administration of social security programmes. The I.L.O. participates in operating the U.N. Expanded Programme of Technical Assistance. The work of the I.L.O. also includes the holding of regional conferences, sessions of industrial committees to discuss the problems of particular industries on an international basis, and a variety of specialised technical meetings.

The International Labour Office in Geneva acts as a secretariat, an operational H.Q., a world information centre,



THE INTERNATIONAL LABOUR OFFICE, GENEVA

view find expression. The conference adopts international labour standards which are formulated in special international treaties called conventions, and in recommendations. These are based on careful fact-finding and discussion. As a two-thirds majority of the conference is required for their adoption, they represent the general agreement of informed world opinion. The decisions of the conference are not automatically binding, but govts. must submit the conference standards to their national legislatures. When the legislature accepts a convention the gov. is bound to apply it. The governing body, which is composed of 40 persons, 20 representing the gov. and 10 the employers and workers respectively, is the executive council of the I.L.O.

On the operational side the I.L.O. provides govts. with expert advice and technical assistance in matters connected with labour and social policy. For this purpose it has estab. in various parts of the world field offices which serve as centres for assistance to govts. in such matters as

and a publishing house. It is staffed by experts drawn from many different countries, whose knowledge, experience, and advice are available to all nations which are members of the organisation. It has branch offices and correspondents in many countries.

Among I.L.O.'s ann. pubs. are the *Yearbook of Labour Statistics* and the *Report of the I.L.O. to the United Nations*. Regular periodicals in English, French, and Spanish include the *International Labour Review* (monthly), *Industry and Labour* (semi-monthly), *Occupational Safety and Health* (quarterly), *Official Bulletin* (irregular), and *I.L.O. News* (a monthly bulletin).

**International Law**, comprehensive term denoting the sum of those rules of conduct which obtain among modern civilised nations, and which regulate their mutual relations and intercourse. The 'persons' or 'parties' known to I. L. are states, and normally such sovereign independent states as are recognised members of the family of nations (on the nature of the

artificial conception of state, *see* GOVERNMENT; STATE): that 'aggregate of states which, as the result of their historical antecedents, have inherited a common civilisation, and are at a similar level of moral and political opinion' (Prof. Holland). The question how far this international, or rather inter-state, code of morality may appropriately be designated 'law' has formed the subject of an extraordinarily prolific literature. One school of jurists follows the narrow but logical Austinian analysis of law, maintaining that no rule can be a law positive unless set by a given sovereign to his subjects and sanctioned by force, and that international 'law,' which must not be confused with the *ius gentium* (q.v. and *see also* EQUITY) of the Romans, is no more than a body of principles, adherence to which on the part of individual states or nations is sanctioned by the fear of war. But another school of publicists and jurists, while not for the most part venturing directly to controvert the Austinian analysis, asserts that laws are not necessarily sanctioned by force so much as by the play of public opinion, and that the want of an actual authority to enforce observance will not deprive of their legal character rules which men habitually and conscientiously obey without any thought of fear inspired by some controlling authority. The mere fact, however, that no modern civilised state would openly declare its unwillingness to be bound by such rules as have now received the seal of international approval at The Hague conferences, and that many have submitted to arbitration with at least a show of good grace, does not alter the fact that treaties or conventions are frequently violated and immunity gained only at the price of fear of superior armaments. In Germany, for some years before the Second World War, the Ger. Gov. broke treaties without scruple, and during the war showed that they felt bound by no 'laws' other than those of expediency. The true view would seem to be that positive or municipal law and a rule of international morality have points of resemblance, but differ essentially in point of promulgation and enforcement. There is a similarity from the fact that conformity to each does to a great extent rest upon consent freely given from the recognition of an inherent and sound ethical standard. The jurisprudential aspect of I. L. is neatly summarised by Prof. Holland as the 'vanishing point of jurisprudence, since it lacks any arbiter of disputed questions, save public opinion, beyond and above the disputant parties themselves, and since, in proportion as it tends to become assimilated to true law by the aggregation of states into a larger society, it ceases to be itself, and is transmuted into the public law of a federal government.' An ambitious but ill-fated attempt to provide international rules with definite sanctions was made in the sanction clauses of the Covenant of the League of Nations (*see* COVENANT). The Covenant provided a wider sphere of I. L. with a coercive power such as it had not hitherto possessed, and in jurisprudence

is the most significant part of the Covenant. A further, if less striking, attempt to give international rules definite sanction was made in the treaty of Washington, 1922. The treaty provides that belligerent submarines shall be subject to the rules that govern surface warships in visit, search, and capture, and that violation of these rules shall be declared piracy punishable by the civil or military authorities of any Power within the jurisdiction of which the pirate may be found. Thus the treaty endeavoured to remove from the sanctions of the laws of war the fatal defects which the First World War made so patent. Experience in the Second World War afforded no evidence of any neutral availing itself of this power. While Britain stood alone, the sole defence against the ocean-wide and illegal activities of the Ger. U-boats was the Brit. Navy and its Fleet Air Arm.

*Agencies or sources of International Law.* These, according to Wheaton, are: (1) text writers of authority on the approved usage of nations, such as Ayala (q.v.), Grotius (q.v.), Puffendorf, Bynkershoek, and Vattel; (2) treaties of peace, alliance, and commerce; (3) ordinances of particular states prescribing rules for the conduct of their commissioned cruisers and prize tribunals; (4) the adjudication of international tribunals, such as boards of arbitration and courts of prize; (5) written opinions of official jurists given confidentially to their own govts.; and (6) the hist. of the wars, negotiations, treaties of peace, and other transactions relating to the public intercourse of nations. All these sources are invoked by Wheaton as a possible basis for a rule so generally recognised as to amount to a rule of I. L. Paradoxically enough, though there was until recently next to no written I. L., there has for some considerable time existed an encyclopaedic bibliography of opinions on the principles underlying its now generally recognised usages. But too much importance must not be attached to the opinions of jurists, because, while some rely upon practice and precedent, or the decisions of a court and the act of a gov., others prefer the theoretical speculations of eminent predecessors. The latter, however, are in a minority in these days of precedents, though it was otherwise in the days when the works of Grotius, Ayala, and a few others were almost the sole source of information. Treaties are the most important source, if we include under that term every form of convention, contract, or declaration made between or ratified by different states. The Declaration of Paris, 1856, the Geneva conventions of 1861 and 1906, and the conventions drawn up by the representatives of most of the leading nations at the various Hague peace conferences have by their combined effect led to the evolution of a tolerably comprehensive body of express I. L. purporting to regulate the usages of war, ameliorating the condition of the sick and wounded in war, whether on land (the Geneva Convention) or at sea (Hague Convention, 1899). These sources have,

since the First World War, been considerably supplemented by the provisions of the treaty of Versailles creating the League of Nations, and by various later agreements arising out of the amendment of the Articles of the Covenant. The convention of 29 July 1899 represented the agreement of no fewer than 24 states to submit certain disputes to a permanent court of arbitration, an innovation which still further assimilates I. L. to law proper. Provision was also made for international commissions of inquiry on disputes 'arising from a difference of opinion on facts,' although as to these last-mentioned bodies it was further provided that their reports should leave entire freedom of action to the parties concerned. Such an inquiry was held in the case of the Dogger Bank outrage on Brit. fishing vessels at the time of the Russo-Jap. war. In the express recognition of arbitration as the most efficacious and equitable means of composing differences, it is to be noted that, although most European powers bound themselves to submit to the arbitration tribunal for a period of 5 years, there was an express condition 'qu'ils ne mettent en cause ni les intérêts vitaux, ni l'indépendance ou l'honneur des deux états contractants et qu'ils ne touchent pas aux intérêts des tierces puissances.' This principle finds more definite expression in the Covenant of the League of Nations, where it is limited by considerations of aggression. This work of consolidating or codifying the usages of I. L. and creating a tribunal was supplemented by the Declaration of London (q.v.), which created an International Prize Court of Appeal and further regulated the law of contraband and blockade.

*The subjects and general principles of International Law.* The subjects or persons of I. L. are normally sovereign and independent states. Sovereignty is a fact depending on nothing else than the objective existence of all the ordinary phenomena of political independence; though such external sovereignty may require recognition by other states to enable the new sovereign state to enter the society of nations. The characteristics or elements of international personality may be summarised thus: 'Every society claiming admission to the law of nations must satisfy the following requirements: (1) It must be represented by a gov. which receives a *de facto* allegiance from its subjects; (2) it must be a sovereign independent state, though it is not necessary that there should be complete independence; (3) it must exhibit reasonable promise of durability (internal instability was one reason for delay in the recognition of the U.S.S.R. or Soviet Russia); (4) it must possess definite *ters.*; and (5) it must be recognised as a member of the family of nations.' In the theory of I. L. a state under suzerainty is no different from an individual state in a federal system, its subjects being in effect those of the suzerain state. A protectorate occupies an anomalous position midway between an independent sovereign state

and a state under suzerainty, for it remains independent and owes no allegiance to its protector, although a part of its rights have been surrendered either temporarily or permanently.

After the First World War certain *ters.* ceased to be under the sovereignty of the defeated states and were *mandated* to various powers. The mandatory representation marked a new and progressive principle in I. L. The question of the sovereignty of the mandated *ter.* raised juristic difficulties; for it might lie in the League of Nations, in the mandatory state, or in the mandated *ter.* Class 'A' mandated *ters.*, however, appeared to be largely assimilated to protected states; but 'B' (e.g. Tanganyika *Ter.*) and 'C' (e.g. S. W. Africa) *ters.* would appear to await appropriate juristic definition. (See further MANDATES; and also IRAQ; PALESTINE; SYRIA.) Again, the self-governing dominions of the Brit. Commonwealth occupy, in I. L., a position difficult to define. Before the First World War they had traces of individuality or 'international personality,' in that they had their own coinage, their own flag in the shape of a modified Brit. ensign, and they had the right to make treaties independently with foreign states on minor matters like tariffs. The effect of the First World War was to emphasise these previously tentative steps towards international personality; for the dominions secured separate representation at the Peace Conference in 1919, and became original members of the League of Nations, with separate representation on the League Assembly; while Canada, in 1921, was given the right to accredit to the U.S.A. a representative who was to be appointed by the king on the advice of the Canadian Gov., and whose duties were to deal with questions between the Crown and the U.S.A. affecting Canada. At about the same time the Rep. of Ireland had a Minister Plenipotentiary to represent Free State interests in Washington. To-day the sev. dominions exchange representatives with a number of foreign govts. (As to the relations *inter se* of the members of the Brit. Commonwealth of Nations, see IMPERIAL CONFERENCE and INTER-IMPERIAL RELATIONS REPORT.)

Some encroachment on sovereignty seems to be implicit in the right of intervention. The question of peaceful intervention has been brought into prominence by the rights possessed by the League of Nations under the Covenant (q.v.) and under treaties containing Minority Clauses. Jurists do not agree on the precise scope of the right of intervention; but the tendency of opinion prior to 1938 was towards agreement on the basis of the grounds mentioned in Articles 11 and 15 (6) of the Covenant, the net effect being that the Great Powers of Europe would no longer claim under treaties the right to intervene in the affairs of other European states while there existed in the League of Nations a means to that end. But in 1938 and the immediately succeeding years the totalitarian technique, as developed by



Germany and Italy, reversed this tendency completely and not only intervention but invasion-without-ultimatum became so common that the entire structure of I. L. was threatened.

*League of Nations.* The League, created on the ratification, in 1920, of the treaty of Versailles, and by the provisions of that treaty, was by no means novel in its conception. But it was a novel subject of I. L., for it aimed (vainly, as the Second World War proved), through the Covenant, at the promotion of international co-operation and maintenance of international peace (see LEAGUE OF NATIONS).

I. L. recognises the right of any state to place itself under any form of gov. it may choose, and to regulate its domestic concerns as it will. Again, a state may pursue any commercial or fiscal policy and maintain what armaments it may choose without thereby infringing any rule of I. L., and its judicial tribunals may assert exclusive authority over all persons and things within the ambit of their jurisdiction, whether such persons and things are foreign or not. In litigation between private individuals involving a conflict of legal systems, the application of foreign law is based on international comity (see COMITY OF NATIONS). For conflict of laws or private I. L. see CONFLICT OF LAWS.

An underlying principle of I. L. is that whether an independent nation be strong or weak does not affect its right to equality of treatment and respect in all matters directly or indirectly concerning its interests. Included in the ter. of a state are the so-called territorial waters extending for 3 m. out, measuring from low-water mark. It follows also from the general freedom of the high seas that men-of-war and other public vessels on the high seas are 'essentially and in every point treated as though they were floating parts of their home state.' Included in such fictional parts of foreign ter. are the official residences of diplomatic envoys and ambas. A movement for the recognition of free navigation on international rvs. began at the beginning of the 19th cent. and developed in the case of a number of great European rvs. in conventions between the various riparian states concerned. By the stipulations of the Congo Conference at Berlin in 1884-5, the Congo and the Niger are free, and there is a special international commission called the International Congo Commission to regulate navigation on those rvs.

I. L. concerns belligerency, or the rights and duties of states in time of war, neutrality, and the pacific settlement of international disputes by arbitration. In regard to belligerency I. L. lays down rules for the commencement of hostilities, and for determining 'enemy character, whether of goods, ships, or persons (see ENEMY); it prescribes the permissible modes of warfare, and provides for the proper treatment of prisoners of war and wounded belligerents, though, in this connection, the policy of 'frightfulness' habitually adopted by the Germans has

involved in its application the abrogation of these rules (see also DEPORTATIONS; SUBMARINE WARFARE; AERIAL WARFARE). Further, it lays down restrictions on the conversion of merchant into war vessels on the high seas, interprets the effect of conquest upon liabilities, and the general operation of treaties, and regularises the practice of pacific blockade. The rights and duties of neutral powers are defined in the rules as to contraband (see DECLARATION OF LONDON), the supply of arms by neutral states, the right of asylum, passage through neutral ter., blockade, and the visit and search of neutral merchantmen. As to what acts on the parts of its subjects a neutral gov. is bound to restrain and what acts its subjects may do at their peril, the *Alabama* case showed that there was no clear principle before the award of 1907 as to whether a gov. might acquiesce in the preparation and sale of an armed vessel: the analogy to the principle by which a gov. incurs no legal responsibility for the supply of guns being very close. Now neutral gov.s must use due diligence to prevent the arming or equipment of such vessels within their jurisdiction.

*International Law and war crimes.* The critics of the Nuremberg judgment of 1946 allege that there is no precedent for establishing the crimes with which the prisoners were tried and imposing the punishment. But the crimes and atrocities committed by the Axis Powers were beyond anything in hist. in regard to both their range and their enormity. They were international in character and therefore to be judged according to the rules of I. L. The killings charged at Nuremberg were killings which the Tribunal held could not be justified under I. L., that is the laws or customs of war. The killing of hostages, the murder of prisoners of war, the extermination of Jews and others, the slaughter of millions in concentration camps (q.v.) and in occupied countries by manifold means, were all accomplished in flat breach of The Hague and Geneva Conventions. These are Conventions which had been solemnly agreed by all the assembled nations, including the Axis Powers, for the ameliorisation as far as possible of the horrors of war. None of the prisoners at the Nuremberg trial received the death sentence unless he was found guilty of murder, that is on the counts of war crimes (see CRIMES, WAR) or crimes against humanity, and violating the laws and customs of war—the validity of which cannot be doubted for they date back to Grotius and even earlier. What was to some extent novel was that the heads of the Hitler Inner Council were individually indicted and punished for initiating and waging a war of aggression. But those who aver that there is no law against aggressive war ignore the existence of I. L. Since 1919 at least the nations have deliberately sought to outlaw war. The pact of Paris, the Kellogg-Briand Pact of 1928, was a most solemn treaty made by 66 nations which agreed to renounce war as an instrument of national policy, and the aggressors in the Second World

War were among these nations. The Pact was a declaration of I. L. by practically the whole of the civilised nations, and the Germans were guilty of a breach of that treaty and of I. L. by initiating and waging war. Hitler and his followers were therefore individually principals in the common plan of breaking that I. L., and, as the Tribunal said, the crime against peace was the most atrocious crime of all; for it let loose the whole mass crimes of slaughter, terrorism, and cruelty. That was the common plan of crime which the Nuremberg Tribunal condemned and for which they punished the individuals responsible. I. L. for international crimes was defined in conventions or treaties like the pact of Paris. It was expressly intended to put the matter beyond controversy, and these declarations were at length put into use. There is thus no ground for describing the decisions of the Nuremberg trial as *ex post facto* law. The trial is a landmark in I. L. It estab. the right of the world to inquire into the acts of military men and into the acts of govts., statesmen, and politicians charged with bringing about a war and with concerted and calculated breaches of treaty and of faith and of the laws of war. See also NUREMBERG TRIAL.

See F. Bauer, *Die Kriegsverbrechen vor Gericht*, 1945; R. H. Jackson, *The Case Against the Nazi War Criminals*, 1946; H.M.S.O., *War Crimes Commission: Law Reports of Trials of War Criminals*, 1948.

For detailed reference to the rights and obligations of states in time of peace see AERIAL NAVIGATION, AERIAL LAWS; ARBITRATION, *International Arbitration*; EXTRADITION; EXTRA-TERRITORIALITY; MANDATES; MONROE DOCTRINE; PROTECTORATE; SOVEREIGNTY; etc.; for detailed reference to belligerence or the rights and duties of states in time of war see BELLIGERENTS, RIGHTS AND DUTIES OF; also AERIAL WARFARE; CAPITULATIONS; CARTEL; CHEMICAL WARFARE; DECLARATION OF LONDON; DECLARATION OF PARIS; EMBARGO; GUERRILLA WARFARE; PRIVATEERS; PRIZE OF WAR; REPRISALS; REQUISITIONS; and for rights and duties of neutral powers see BLOCKADE; CONTRABAND; CONVOY; DECLARATION OF LONDON; NEUTRALITY; VISIT AND SEARCH.

See H. Wheaton, *International Law*, 1836 (5th ed. by C. Phillipson, 1915); W. E. Hall, *International Law*, 1880 (8th ed. by A. P. Higgins, 1924); H. S. Maine, *International Law*, 1888; J. Westlake, *International Law*, 1904-7, and *Collected Papers* (ed. by Prof. Oppenheim), 1914; L. Oppenheim, *International Law*, 1905-6 (3rd ed. by R. F. Roxburgh, 1920, 7th ed., 1948); F. E. Smith (Lord Birkenhead) and N. W. Sibley, *International Law as interpreted during the Russo-Japanese War* (2nd ed.), 1907; F. E. Smith (Lord Birkenhead), *International Law*, 1911 (6th ed. by R. Moeswyn-Hughes, 1927); J. M. Spaight, *Aircraft in War*, 1914; H. R. Pyke, *The Law of Contraband of War*, 1915; E. M. Borchard, *Diplomatic Protection of Citizens Abroad*, 1915; J. H. Morgan (trans.), *The German War Book (Kriegsbrauch im*

*Landkriege)*, 1915; A. P. Higgins, *Defensively Armed Merchant Ships and Submarine Warfare*, 1917; Sir E. Satow, *A Guide to Diplomatic Practice*, 1917; Sir F. Pollock, *The Law of Nations*, 1922; W. Schücking, *Die Satzung des Völkerbundes kommentiert von W. Schücking und H. Wehberg*, 1924; T. Baty, *The Canons of International Law*, 1931; H. L. Hart, *The Bulwarks of Peace and International Justice*, 1933; M. O. Hudson, *The World Court*, 1921-34, 1934; H. Wehberg, *Theory and Practice of International Policing*, 1935; L. Oppenheim, *International Law*, 1948; A. Ross, *Text-book of International Law*, 1948.

International Law, Private, see CONFLICT OF LAWS.

International Monetary Fund, one of the institutions estab. after the Second World War and intended to be a (permanent) means of establishing a world multilateral system of payments. Together with the International Bank for Reconstruction and Development ('World Bank') (q.v.) it put into effect the conception of a world central bank envisaged by the plans drawn up by Lord Keynes for Britain and Mr H. D. White for America at the Bretton Woods Conference in 1944. The I. M. F. was estab. at Washington in 1946. It may be regarded as a co-operative deposit bank. A pool of funds was formed in the first place by subscriptions (of gold and currencies) from the nations at the conference based on a formula depending on their pre-war trade. A country whose trade left it with a deficit of gold, or of a foreign currency, had the right to draw on the pool over a period of 4 years up to 4 times the value of its quota, in exchange for its own currency. Charges were payable for this facility based on the amount by which the drawings exceeded the quota and on the time for which the excess was held. Unlike a central bank, the I. M. F. sells and buys gold and currencies and does not make loans, and its funds are limited to the amounts subscribed by the member nations. This limit has also prevented the I. M. F. from ironing out extreme fluctuations in exchange rates due to the chronic lack of balance in the balances of payments of individual countries, particularly with America. The I. M. F. has not therefore realised the hopes entertained for it at Bretton Woods; but this is largely because the instability in foreign exchanges has been much greater than was anticipated.

The countries represented at Bretton Woods agreed to stabilise their currencies, and they envisaged a return to the gold standard in 5 years, with each currency freely convertible into others. They were to fix the value of their currencies, but were free to vary it up to 10 per cent. Larger variations could be made only with the permission of the I. M. F., which would be given if there was considered to be a 'fundamental disequilibrium,' i.e. an over-valuation or under-valuation due to changes in the conditions of international supply and demand. But these

rules have remained largely on paper. When France devalued the franc in 1948, Britain the £ in 1949, and other countries devalued their currencies, they did not ask the authority of the I. M. F. (One difficulty is that of publicity.) Nevertheless, it is possible that even more changes in exchange rates, perhaps with less good reason, might have been made in the absence of the I. M. F. Nor has the undertaking to abolish exchange rates been kept. Yet the I. M. F. has disapproved of some kinds of exchange controls, and can be said to have reduced their use. By 1958, full convertibility of currencies had not been reached. When it is, the I. M. F. will come into its own as a means of maintaining stability in exchange rates, and thereby assisting in the working of a liberal international system. See BREITON WOODS AGREEMENTS.

**International Press Institute**, association of over 600 editors from 30 countries, founded in 1951, for the preservation of a free press, the promotion of personal relationships, and international news exchange. Its H.Q. are in Zurich, Switzerland.

**International Settlements, Bank for**, commenced operations in 1930. It owes its existence to the Young Committee (see YOUNG PLAN), which sat in Paris in 1929, and was estab. primarily to furnish a practical and easy means for the final adjustment and distribution of Ger. reparations and those international debits and credits which remained as a result of the gigantic borrowing and lending by the nations in the First World War. The Swiss Gov. granted a charter for 15 years to the bank. All the central banks in Europe were invited to subscribe. The I.I.Q. of the bank are in Basel. Control of the bank is in the hands of a board of directors which is composed of the governors of the founding central banks, *ex officio*; a corresponding number of persons nominated by them; and the governors of certain other central banks selected by the board. During 1939-45 no board meetings were held and the bank confined itself to routine functions. But since the war it has acquired a new function as 'clearing house' for the European Payments Union, the multi-lateral clearing system worked by the 18 members of the Organisation for European Economic Co-operation (q.v.).

**International Telephone and Telegraph Company**, with main offices in New York City, operates telephone systems in the Argentine, Brazil, Chile, Cuba, Mexico, Porto Rico, and Uruguay. Sev. years ago, with the consent of the Sp. Gov., it bought up all the telephone companies in Spain and introduced Amer. machinery and methods. It maintains a telegraph service all over S. America and this connects with services in the U.S.A. and Europe. It also has a cable between the U.S.A. and S. America.

**Interplanetary Society, British**, founded in 1933, to promote the development of interplanetary travel and exploration by the study of rocket engineering,

astronomy, and associated sciences. The society has over 2800 fellows and members, including many Brit. and foreign workers prominent in these fields. In 1938 the society pub. provisional designs for a lunar spaceship. Further recent papers have dealt with expendable tank step rockets, atomic propulsion for rockets, and earth satellite stations. The society is particularly interested in the question of lunar circumnavigation and landing, since these represent the first objectives in interplanetary flight. The problem of directing a rocket to the moon and obtaining information by telemetering and television has been brought nearer solution by the launching of earth satellites, 1957/8, but investigation of the physiological problems involved before manned rocket flight is possible has still to be undertaken. Also, the engineering difficulties involved in building a rocket capable of a return journey are much greater than those of a missile to achieve the one-way trip. For space travel and spaceships see ROCKETS AND SPACE TRAVEL.

**Interpleader**. When a person finds himself in the position of being sued for the recovery of money or goods in his possession in which he claims no interest, but to which some third person besides the plaintiff lays a claim, he is not compelled either to incur the cost of defending the plaintiff's action or run the risk of an action at the instance of the other claimant by handing over the property to the plaintiff. His proper course is to take out an I. summons under Order LVII (rules of Supreme Court), on the hearing of which the action against him is summarily stopped and the 2 claimants are made parties to an I. issue. This is called a stakeholder's I., and is to be distinguished from a sheriff's I. The latter case arises when a third person claims goods which have been seized by a sheriff under an execution (q.v.) for a judgment debt. The sheriff's course is to serve an I. summons on both the claimant and the executive creditor, and on the case coming on before the master an issue will be directed for trial, unless the amount in dispute is under £50, when he will himself summarily dispose of it. Where the master directs an issue, the claimant must pay money into court to abide the event of the trial; if he declines the master will make an order for sale (if goods) or payment (if money) to satisfy the judgment creditor's claim. See Cababé, *Interpleader*.

**Interpolation**, mathematical process of filling in values intermediate between those given in a set of tables. A graph may be drawn based on the data from which intermediate values can be determined (see GRAPHICAL METHODS). Alternatively the method of proportional parts can be used, which is merely a particular case of finite differences (q.v.), in which only first differences are taken into consideration.

**Interrex** (Lat. *inter*, between; *rex*, king), official of anet Rome, appointed by the senators on the death of a king to hold the supreme authority between the death

of a king and the election of his successor. He held power for 5 days, and had to belong to the patrician party. The first I. appointed named a successor, and sometimes the nomination continued to a third and even a fourth. Thus the fiction of personal selection was kept up, held to be essential to the proper transference of the religious authority of the king.

**Interrogatories.** In interlocutory proceedings (q.v.) in an action at law, either plaintiff or defendant may apply, as soon as the latter has delivered his statement of defence, to a master in chambers for leave to administer I. to his opponent. The other party must answer the I. within the period specified. The I. before delivery are submitted to the master, who may disallow all or any in his discretion. Only such I. will be permitted as appear to the master necessary for disposing fairly of the case or for saving costs. The object of I. is to obtain admissions from the other party with a view to proving one's own case and to ascertain as far as possible the case of the other party. But it is not, at least in theory, permitted to a litigant to institute a 'roving commission' of inquiry so as to work up a case out of his adversary's forced admissions or to defend a just cause by a similar process. I. must relate strictly to the matters or facts in issue (see EVIDENCE), but, unlike pleadings, are not confined to the material facts upon which the parties intend to rely, for they are generally directed to the evidence. The party interrogating is entitled to ask 'anything that can be fairly said to be material to enable him either to maintain his own case, or to destroy the case of his adversary.' But he cannot ask the names of his opponent's witnesses, nor indeed is he entitled to find out on what evidence his opponent proposes to rely to prove his side of the case. In legal slang this is expressed in the prohibition of 'fishing' I. There are sev. forms of objecting to answering I., but generally objections must be by affidavit. The customary objections are on the ground of irrelevancy, that the I. are fishing, that the matter is privileged, and that the contents of a document are asked.

**Interval,** in music, is the name for the distance in pitch between 2 or more musical sounds. The smallest I.s used in W. music are semitones, which, in a keyboard (but not in a string) instrument, have always the same distance in pitch between them, and it is the number of tones contained in the I. between 2 notes of different pitch which determines the 'size' of the I. I.s are primarily divided into 2 classes, consonant and dissonant, but the lines of demarcation between the 2 have been very differently fixed. The Greeks considered the unison, octave, fifth, and fourth more perfect than the other I.s. In medieval treatises I.s were divided into perfect, medium, and imperfect, the unison belonging to the first class, the fourth and fifth to the second, and the third and sixth to the last; the div. into perfect and imperfect is still followed by some theorists at the present

day. The simplest classification is that on the following system: I.s are reckoned upwards inclusively and by number of 'names' of notes which they contain; they are in their normal state when reckoned from the first note of the major scale, considered, for the time, as the 'tonic.' I.s one semitone 'less' than 'major' are 'minor,' and one semitone 'more' than 'major' are 'augmented,' while I.s one semitone less than 'minor' are 'diminished.'

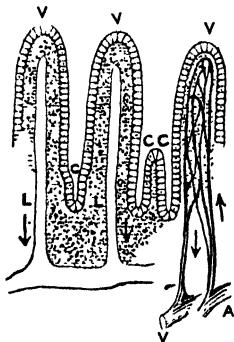
**Intestacy** denotes the decease of a person without having made a will, or where, though a will has been made, it has been either revoked or is invalid. A person so dying is said to have died intestate, and his property will pass to his next of kin. See SUCCESSION, TESTATE. See also DISTRIBUTION, STATUTES OF and INHERITANCE.

**Intestines.** The I. form the portion of the alimentary canal between the stomach and the anus (q.v.).

The *small intestine* is a slightly narrowing tube from 22 to 25 ft long, commencing at the pyloric end of the stomach, and after many convolutions terminating in the large intestine. It occupies the lower and middle part of the abdomen (q.v.) and is surrounded by the large intestine. The small intestine is arbitrarily divided into 3 portions, viz. the duodenum, jejunum, and ileum. The duodenum, about 10 in. long and from 1½ to 2 in. in diameter, is the shortest and widest part of the small intestine. It resembles a large C-shaped curve, its concavity embracing the head of the pancreas. It is only partly covered by the peritoneum. The middle descending portion of the duodenum receives the common bile duct and pancreatic duct. The jejunum, about 8 to 9 ft in length and 1½ in. in diameter, occupies the upper and left part of the abdomen below the subcostal plane. It joins the duodenal section on the left side of the vertebral column, and is continued into the ileum, which is about 12 to 14 ft in length and 1½ in. in diameter. This portion occupies the lower and right part of the abdomen and is highly convoluted. Both the jejunum and ileum are attached and supported by an extensive fold of the peritoneum (the mesentery). At a point about 3 ft from the termination of the ileum a small pouch (Meckel's diverticulum) is occasionally found, and is probably connected with the persistence of a part of the vitelline duct of early foetal life.

**Large intestine.** This portion of the alimentary canal is 5 to 6 ft long and extends from the ileum to the anus. It is divided into 3 parts, viz. the caecum (with the vermiform appendix), the colon, and the rectum. The colon is further divided for descriptive purposes into the ascending colon, the transverse colon, the descending colon, and the sigmoid colon. Its diameter varies from 2½ in. in the caecum to 1½ in. in the lower part of the colon, diminishing gradually throughout its length with the exception of the well-marked dilatation of the rectum referred

to later. The caecum is a blind sac occupying the right ilia fossa immediately behind the anterior wall of the abdomen and extending some 2 or 3 in. below the ileo-caecal junction. Normally this junction contains the ileo-caecal or ileo-colic valve, though cases of the absence of this valve have occurred and no inconvenience has been recorded during life. The caecum is covered by the peritoneum in front, below, and at the sides. From its posterior and left surface the vermiform appendix protrudes and usually is directed upwards and to the left, though



VERTICAL SECTION THROUGH A FRAGMENT OF THE SMALL INTESTINE

V, V, V are three villi, each covered by columnar epithelium; C, C, C are the little tubular glands (crypts of Lieberkühn) between the villi which secrete intestinal juice. L and L are the central lacteals which convey the chyle into larger lymphatic vessels, with valves in the submucous coat. In the villus on the right the central lacteal is not shown, but here the blood-vessels are depicted. The capillary network is immediately under the epithelium; it originates from a small artery, A, and leads into a small vein, Vn.

It not infrequently hangs down into the true pelvis. Its opening into the caecum is about 1 in. below that of the ileum. So far as is known, this appendix is peculiar to man, certain of the higher apes, and to the wombat; but in some animals a peculiar formation of the distal part of the caecum may represent a condition of the appendix. Its susceptibility to disease has been dealt with elsewhere (see APPENDIX). At birth the caecum is a cone and the appendix is its apex; it is bent upon itself to form a C, and this form may persist throughout life. The colon is subdivided into 4 parts: (a) The ascending colon, a portion of the canal about 8 in. long. It is situated in the right lumbar region and ascends vertically to the under surface of the liver. (b) The transverse colon describes a bow-shaped curve, the arch of the colon, and passes across from

the right hypochondrium to the left. It is invested by the general peritoneum, which forms a separate fold for it (the transverse meso-colon). (c) The descending colon is continuous with the previous portion by a sudden bend, the splenic flexure, where is situated a remarkable fold of the peritoneum (costo-colic ligament). It descends vertically for about 6 in. to the left iliac fossa, and is usually empty and contracted, while the rest of the colon is filled with gas. The peritoneum forms a covering to it only at the front and sides. (d) The sigmoid flexure is the narrowest part of the colon. The rectum, the lowest portion of the large intestine, extends to the anus. It bears its name in the human subject as it has a marked concavity forward corresponding to that of the sacrum and coccyx. It is some 8 in. in length and ends in a dilatation (rectal ampulla) which is in contact with the back of the prostate in the male and of the vagina in the female. The peritoneum covers only a portion of the rectum, being reflected down and forming a pouch between the bladder and the rectum in the male, or between the uterus and rectum (pouch of Douglas) in the female.

**Structure and glands of the intestines.** The I. are composed of an external serous or peritoneal coat and 3 others: muscular, submucous, and mucous. The muscular coat consists of 2 layers of fibres, a longitudinal and a thicker inner circular set. The progressive contraction of the fibres of the muscular coat produces the peristaltic movement by which the contents of the I. are forced onwards. The submucous coat of strong loose areolar tissue is connected more firmly with the mucous coat than with the muscular coat. The mucous coat is thick and vascular and consists of: (1) an epithelial layer forming the intestinal glands; (2) a layer of retiform tissue which supports the blood vessels and lacteals; and (3) a thin layer of unstriped muscle (*muscularis mucosae*). In the duodenum and jejunum the mucous membrane is thrown into a series of closely placed transverse pleats (*valvulae conniventes*). The largest are about 2½ in. long and ½ in. wide at the broadest part, and they materially increase the absorbent surface to which the food is exposed. The surface of the small intestine is velvety, due to the presence of minute closely set protuberances termed villi. Two kinds of small secreting glands are found in the I., viz. the crypts of Lieberkühn and Brunner's glands, the latter being peculiar to the duodenum. Throughout the whole length of the intestinal tract are minute masses of lymphoid tissue (solitary glands). They are especially numerous in the caecum and appendix; in the ileum they are collected into large oval patches known as aggregated glands or Peyer's patches, the long axes of which, ½ in. to 4 in. long, are arranged lengthways in that part of the tube most distant from the mesentery.

**Vessels and nerves.** All parts of the I. are supplied with a very complete system of blood and lymphatic vessels (lacteals) minutely subdivided. The nerves of the

I. are chiefly derived from the superior mesenteric plexus, and at first they and their subdivs. cling very closely to the larger arterial vessels; finally they reach the I. in very numerous branches to be distributed and redistributed in the muscular and submucous coats. For diseases of the I. see under separate headings.

**Intimidation**, see **THREATS**.

**Intonation**, in music, the opening phrase of any plain-song melody. The term is usually applied to the first 2 or 3 notes of a Gregorian psalm-tone, generally sung by one or more selected choristers, or by the officiating priest. Its use is, as a rule, confined to the first verse of the psalm or canticle, though occasionally in the *Magnificat*, *Benedictus*, and *Venite* the opening phrase of each successive verse is sung in this way to give a greater solemnity. The term I. is also used to describe singing or playing in or out of tune: i.e. 'good' or 'bad' I.

**Intoning**, uttering prayers in the form of a musical recitative, similar to chanting, the greater part of the prayer being recited on 1 note, varied sometimes by certain simple inflections. In cathedrals and larger churches, I. greatly simplifies audible utterances as well as adding beauty, formality, and dignity to choral worship. The practice of I. is undoubtedly of ant. date, and obtains among the great majority of non-Christian nations, as well as in the Gk., Rom., Anglican, and Lutheran churches.

**Intoxication**, see **ALCOHOL**; **ALCOHOLISM**; **DRUNKENNESS**; **INEBRIATES**.

**Intra**, It. tn in Piedmont (q.v.), on the W. shore of Lago Maggiore (q.v.). It lies between 2 rivs., the San Giovanni and the San Bernardino. It has a small port and textile industries, and is popular with tourists. There are schools of chem. and electro-technology. Pop. 8000.

**Intrados**, in architecture, the inner face or underside of an arch (see **ARCH**).

**Introit**, part of a psalm, with antiphon and gloria sung in the Rom. Catholic Church at the beginning of the mass, as soon as the priest begins the introductory prayers. Other passages of Scripture are sometimes used. The introduction of I.s is ascribed to either Celestine (423) or to Gregory the Great (590). Some of the I.s in the present missal are taken from uninspired writers. I.s also occur in Church of England services.

**Intromission**, in Scots law, the assuming possession of the property of another either on legal grounds or without authority. I. in the latter case is contradistinguished as vitious (Lat. *vitium*, a defect). One of the commonest forms of legal I. is that of an adjudger, or creditor, who has obtained an adjudication by process of diligence against his debtor for the payment out of the rents of his debt and interest. The term is commonly used to denote financial dealings, e.g. of trustees.

**Intrusive Dyke Rocks**, see **DYKES** and **IGNEOUS ROCKS**.

**Intuition**, in philosophy, a term signifying the mental faculty of spontaneous

knowledge of the truth as opposed to its discovery by any ratiocinative process. The concept and word are taken from the terminology of medieval scholasticism. In particular, I. in scholastic theology meant a knowledge of God in the beatific vision. The term 'intuitional,' as used later in the science of ethics, is of the first importance in that it denotes a school of thought diametrically opposed to the utilitarian. The intuitionists define the principles and method upon which are to be determined right rules of conduct by reference to a supposed moral sense; or, in other words, duty is to be measured by certain fundamental axioms or intuitively known principles of moral reasoning. The utilitarians, on the other hand, adopt no such subjective standard of good conduct, but estimate the moral value of an act by reference to an objective standard of human duties, whether utility, general happiness (universalistic hedonism), or individual happiness (egoistic hedonism). The authority of the conscience or moral sense, as opposed to what may generically be termed the social affections, was first advanced, among Eng. philosophers, in a distinct form by Butler in his *Dissertation on Virtue*, 1739, and carried further by Reid in the *Essays on the Active Powers of the Human Mind*, 1788. Reid insists on the essential difference between self-love, or regard for one's own good, and sense of duty, or conscience, where Butler seems to have leaned to a belief in their identity in a future life. Whewell, in *Elements of Morality*, 1845, endeavours to formulate a list of intuitive principles exclusive of all regard for happiness and referable to the sole governing principle of conduct, the moral reason. These I.s are compendiously defined as the principles of benevolence, justice and truth, purity and order. The introduction into the system of the term 'reason,' which, as we have seen, is directly antithetical to the primary notion of I., connotes merely the supremacy of reason over purely non-rational impulses or instincts (q.v.). Kant's use of the word *Anschauung* (literally 'beholding') is practically equivalent to perception, and he gives as instances of true forms of beholding, time and space. But, regarded subjectively, Kant names such I.s transcendental (unknowable), though objectively they are empirically knowable. See A. J. Balfour, *Defence of Philosophic Doubt*, 1920; N. O. Lossky, *L'Intuition, la matière et la vie*, 1928; K. W. Wild, *Intuition*, 1938.

**Intussusception**, or **Invagination**, condition in which one part of the intestine passes into the adjoining portion, telescopically, just as the finger of a glove may on taking it off the hand. The contained portion is nipped and strangled. It is a not uncommon cause of obstruction of the bowels in children, but is not very common in adults. Surgical treatment is usually imperative. The ileum and the junction of the ileum with the caecum are the parts of the intestine involved.

**Inula**, family *Compositae*, genus of ann. to perennial herbs, formerly under

*Conyza*. *I. conyza*, Ploughman's Spike-nard; *I. crithmoides*, Golden Samphire; and *I. salicina* are native to Britain. *I. helentum*, Elecampane, of central Asia, has naturalised, being once much grown for medicinal usages.

**Inulin** ( $C_{12}H_{22}O_{11}$ ), starch-like substance which is found in dahlia and like tubers, where it forms a reserve food supply. It is coloured yellow by iodine, and is quantitatively hydrolised to the sugar fructose by dilute acids.

**Inundations**, see FLOODS and INUNDATIONS.

**Invar**, steel alloy, containing 35 per cent of nickel and some manganese. Its length varies very little with changing temp.; hence it is used for measuring-rods and pendulum bars. See ALLOY.

**Invasion**. In the theories of the rights conferred by international law (q.v.) on invaders it is necessary to distinguish between military occupation and conquest. Occupation may imply no more than the placing of ter. under the authority of a hostile army by way, as it has been expressed, of sequestration, without any intention of appropriating it. Conquest, on the other hand, means acquisition. No such distinction was drawn until the middle of the 18th cent., with the result that the inhab. of a ter. in the possession of a foreign army were bound not only to swear allegiance to the invader, but to assist him in all respects as if he were the legitimate sovereign. After the Seven Years War juristic writings, notably those of Vattel, began to advance the doctrine that a sovereign does not lose his territorial rights in war until a formal cession at the close of the war by treaty. The prevalent modern theory appears to be that the occupying army merely takes temporary possession for certain purposes, while the sovereignty of the original owner continues for all other purposes. But until recently the practice of belligerent govs. differed from the theory which presupposes that since the invader is invested with no more than a substituted or quasi-sovereignty, the national character of the people and soil remain unchanged. The practice is a corollary of the mere rule of might, that the lives and property of the inhab. being necessarily at the disposal of the occupant, the inhab. acknowledge his sovereignty in consideration of his forgoing the extreme rights vouchsafed by superior force. The question of what acts an occupying army may legitimately do depends on circumstances. The general principle is that everything is prohibited which is not calculated to contribute to success in the military operation concerned.

The articles of the Declaration of Brussels prohibit (1) any compulsion of the pop. of occupied ter. to furnish information about the army of the other belligerent or his means of defence; (2) any pressure on the pop. to take oath of allegiance; (3) confiscation of private property, but without prejudice to the right to confiscate by way of punishment or under stress of military necessity; and

(4) pillage; and enjoin (a) the respect of family honours and rights, individual lives and private property, together with religious convictions and liberty, and (b) the general duty of taking all steps to re-establish and ensure, as far as possible, public order and safety, while respecting, unless absolutely prevented, the laws in force in the country (for full information on these points see Lord Birkenhead's *International Law*). The rights of conquest are, of course, much wider. Birkenhead defines conquest as the permanent absorption of all or part of the ter. of a defeated enemy, but lays it down that a title by conquest is only complete if the conqueror has the material strength to make his conquest good and has exhibited the intention of appropriation. The effect of the Nuremberg Trial, which followed the Second World War, is to give a new juristic conception of I. when all the circumstances establish that it constitutes the initiating and waging of a war of aggression. If this be proved the invader has no rights at all in international law but, on the contrary, both individuals and bodies responsible for launching such an I. may be tried on the capital charge. See (CRIMES, WAR; INTERNATIONAL LAW; NUREMBERG TRIAL.

**Invention**, see PATENTS.

**Inventions Board**, see FISHER OF KILVERSTONE.

**Inventory and Inventory Duty**. An I. in regard to the administration of the estates of deceased persons is a list or schedule in which are enumerated all the articles comprising the personal property of the deceased. It also denotes a detailed descriptive list of the assets of a bankrupt, and the property comprised in the schedule to a bill of sale of personal effects. The duty of making an I. of a deceased's effects falls upon the executor or administrator, who should make it in the presence of at least 2 of the creditors of the deceased or the next of kin, or any 2 credible persons, and it should describe the articles seriatim, with the value at which each has been appraised, especially as it may afterwards be admitted as evidence to show what is due to the beneficiaries or creditors. But to be admissible as evidence it should on completion be signed and sworn before a commissioner for oaths. It may be noted that any person interested in the estate may call upon the executor or administrator to exhibit an I., and to render an account of his administration. In Scots law the term I., besides the above applications, is used to denote the schedule made by an heir of the heritable estate of his ancestor with the object of limiting his liability for his ancestor's debts to the amount of the value of the estate so inventoried.

**Inveraray**, royal burgh and co. tn of Argyll, Scotland, 23 m. NNW. of Greenock, on Loch Fyne. I. Castle, seat of the Duke of Argyll, lies  $\frac{1}{2}$  m. NW. of the tn. The original castle was built in the 15th cent. as the stronghold of the 1st Earl of Argyll, head of clan Campbell. The new castle, dating from 1744, was

built by Archibald, the 3rd duke, who with his brother was largely instrumental in effecting the union with England. Pop. 450.

**Inverbervie**, royal burgh and holiday resort of Kincardineshire, Scotland, 13 m. NE. of Montrose. Pop. 885.

**Invercargill**, cap. city of Southland Prov., New Zealand. Area 5914 ac., including 516 ac. of gardens and reserves. Centre of rich agric. and pastoral dist. The city is well laid out with good buildings and picturesque suburbs with fine homes and well-kept gardens. The chief industries are frozen meat, wool, butter and cheese, flour-mills, timber, and coal. There are excellent sporting facilities. The port of I. is Bluff, 17 m. distant, where a Fr. firm contracted in 1956 to build a new harbour to cope with the dist.'s large export trade in primary produce. Pop. 34,293.

**Inverell**, tn of New S. Wales, Australia. It is situated in Gough co., 280 m. N. of Sydney by air. The chief rural pursuits in the surrounding dists. are sheep-grazing and fruit-growing. Pop. 7680.

**Inveresk**, par. and vil. of Midlothian, Scotland, situated on the Firth of Forth, on the site of a former Rom. settlement. The battles of Pinkie (1547) and Carberry Hill (1567) were fought in the par. Alexander ('Jupiter') Carlyle was minister here (1748-1805). Local industries include agriculture, coal-mining, and fishing. Pop. 4000.

**Invergordon**, burgh and naval base of Ross-shire, Scotland, situated on Cromarty Firth, the centre of a productive agric. area. There is a sheltered harbour with piers and a dockyard. I. castle is 1 m. to the NW. I. was the scene of a naval riot in 1931. Pop. 1500.

**Inverkeithing**, royal burgh of Scotland in Fife co., on the Firth of Forth, 10 m. from Edinburgh, one of the Dunfermline dist. parl. bors. It has a harbour, ship-breaking yards, and a paper mill. Pop. 3780.

**Inverlochy**, ruined castle in Inverness-shire, Scotland, on the R. Lochy, 1½ m. NE. of Fort William, the scene of the defeat of Argyll by Montrose in 1645. The model vil. of I. was built to house the employees of the great aluminium works near Fort William.

**Inverness**, municipal bor. and seaport, and co. tn of Inverness-shire, Scotland, situated at the mouth of the R. Ness at the junction of the Beaully and Moray Firths, 108 m. WNW. of Aberdeen. On account of its beautiful environment and fine buildings, it is the H.Q. of an immense tourist traffic throughout the summer. The chief buildings of note are the cathedral, the Town House, Old Abernethy House, royal academy, and co. hall. I. has a fine suspension bridge, and the famous Clach-na-Cudain, regarded as the tn palladium. Shipbuilding, iron-founding, distilling, and the manuf. of woollen goods are the prin. industries, and the tn has good roads and a fine harbour and docks. The open spaces of the tn include Bught Park, and the famous ground

where the most important athletic event of Scotland, the N. Meeting, is held towards the end of Sept. I. is a tn of great antiquity, having been one of the Pictish caps. Pop. 28,115.

**Inverness-shire**, co. in the highlands of Scotland, stretching from the Moray Firth to the Atlantic Ocean. It is the largest co. in Scotland, and includes sev. of the Outer and Inner Hebrides. At the time of the Rom. occupation I. was Pictish ter., but by the 11th cent. the more northerly areas of Scotland were largely under Norse rule, not wholly to be freed until 1263 (battle of Largs). There had been some attempt at colonisation under David I., and the foundations of the clan system were now being laid in I. It was after the Earl of Mar's rising in 1715 that forts were estab. and roads built to hold in check the highland clans. Prince Charles Edward raised his standard in Glenfinnan (1745); after his failure to take the throne the clan system began to break up.

I. is wild and mountainous; 228 mt tops exceed 3000 ft in height, and Ben Nevis (q.v.), the highest mt in the Brit. Isles, reaches a height of 4406 ft. The 3 great rivs. of I. are the Spey, Ness, and Beaully, and the number of lakes and hill tarns is great, Loch Ness being the most beautiful and best known of the larger lakes. There are a few fertile tracts in some of the glens and by the shores of the sea lochs, and in the N. round the Moray Firth. About 5½ per cent of the shire is cultivated, and sheep-farming is carried on extensively. Herring-fishing is also an important industry on the W. coast, and forestry is becoming increasingly important. The chief branches of industry are the production of hydro-electricity, aluminium smelting, distilling, and the manuf. of electric welding machines at Inverness (the co. tn). The tourist industry is also important. The co., with Ross and Cromarty, returns 3 members to Parliament. Area 4211 sq. m.; pop. 84,200.

**Inversion**, term used in geometry. O is a fixed point; P and P' two points on a line through O. If P and P' satisfy the relation  $OP \cdot OP' = k^2$ , where  $k$  is a constant number, then P and P' are mutually inverse points. O is called the centre and  $k$  the radius of I. Thus given O and  $k$ , for a point P the above relation determines a point P', which is said to be obtained by the process of I.

**Invert Sugar**, equimolecular mixture of dextrose and levulose (*D*-glucose and *L*-fructose), obtained by hydrolysing cane sugar with dilute acids. It readily ferments, and is used in the preparation of sparkling wines.

**Invertebrate Embryology**, see EMBRYOLOGY and PROTOZOA.

**Invertebrates**, collective term for all those animals which agree in not possessing that combination of attributes which makes a vertebrate, but have a dorsal nerve chord, a notochord, gill-slits on the pharynx, a ventral heart, and eyes which are out-growths of the central nervous



system. The chief groups of I. are Protozoa (unicellular) and the Metazoa (multicellular), further divided into Porifera, or sponges; Coelentera, unsegmented worms; Annelids, or segmented worms; Echinoderms; Anthropoda, including Crustacea, Insecta, and Arachnida; Mollusca.

**Inverurie**, royal burgh of Aberdeenshire, Scotland, 16 m. N.W. of Aberdeen, at the confluence of the R.s Ury and Don, with a golf-course and facilities for sport. Pop. 5000.

**Investiture**, in feudal and eccles. hist., the act of giving possession of a manor, office, or benefice, accompanied by a certain ceremonial, such as the delivery of a clod or a key, more or less designed to signify the power or authority which it is intended to convey. Temporal sovereigns claimed the right of investing the bishops with their sees by the formal presentation to them of the ring and crozier, a claim which led to the famous 'Investiture Dispute' between Henry I and Anselm in England, and to the bitter struggle between the Pope and the emperors of Germany in the 11th and 12th cents. At the Diet of Worms (1122) it was finally decided that the emperor should confer I. by a touch of the sceptre only, thus making no claims to confer spiritual power but merely the temporalities of the see.

**'Invincible'**, Brit. battle-cruiser (17,250 tons) carrying eight 12-in. guns, which could be fired broadside to port or starboard. She was flagship of Adm. Sturdee's squadron which defeated von Spee's at the Battle of Falkland Is. (q.v.), in which she suffered no casualties. The I. was sunk at the Battle of Jutland (q.v.), where she was flagship of Adm. Hood's squadron.

**Invincibles**, Irish secret society consisting of extremists connected with the Fenian movement (see FENIANS). The chief member was known as No. 1, and each member was acquainted with but two others—the member by whom he was nominated, and the one whom he in turn nominated. The society was responsible for a number of outrages, including the murder of Lord Frederick Cavendish (q.v.) and Mr Burke in 1882.

**Involute and Evolute**, see CURVES.

**Involution**, mathematical process of raising a quantity to any power. Its inverse process is evolution, the finding of a root. Whereas a quantity has 1 square, 1 cube, and generally 1 *n*th power, it has 2 square roots, 3 cube roots, and generally *n* *n*th roots.

In geometry the process of I. is defined in the following way. O is a point on a straight line. Pairs of points on the line, A, A'; B, B'; C, C', etc. which satisfy OA.OA' = OB.OB' = OC.OC' = . . . = *k*<sup>2</sup> are said to be in I. O is the centre of the I. and *k* the radius of the I. A pair of points satisfying the above requirements are called conjugate points. Two points K<sub>1</sub> and K<sub>2</sub> on opposite sides of O, satisfying OK = OK' = *k*<sup>2</sup>, are the double points of the I. Note that K<sub>1</sub> and K<sub>2</sub> are not conjugate points.

**Io**, daughter of Inachus, the 1st King of Argos. Under the name of Callithyia I. she was regarded as the first priestess of Hera. She was loved by Zeus, who, to protect her from Hera, transformed her into a white heifer (though some say it was the work of Hera herself). The 100-eyed Argus was then set to watch her, but Zeus dispatched Hermes to kill him, and I. was released. But Hera's wrath pursued her, and, tormented by a gad-fly, she wandered all over the earth, till at last, in Egypt, she was restored to human form and became the mother of Epaphus. Aeschylus gives a different version in his *Prometheus*.

**Iodic Acid** (HIO<sub>3</sub>), white crystalline solid, obtained by the oxidation of iodine with concentrated nitric acid. On gentle heating it loses water and becomes converted into iodine pentoxide, which on further heating breaks up into its elements. I. A. is acid to litmus, forming salts, of which sodium iodate, occurring in caliche (Chile saltpetre), is the principal. I. A. is a strong oxidising agent, readily giving up its oxygen with the liberation of iodine.

**Iodine** (symbol I, atomic number 53, atomic weight 127), non-metallic element which belongs to the halogen group (q.v.). It occurs as iodide in sea-water, from which it is collected by certain seaweeds, notably *Laminaria digitata* and *L. stenophylla*, which contain as much as 0.5 per cent. It is also present in crude Chile saltpetre, as sodium iodate.

**Extraction from seaweed**. The weed is burnt in pits and the ash or kelp boiled up with water and the solution concentrated. The less soluble salts separate on cooling, whilst the iodides remain in solution. The liquor is then distilled with sulphuric acid and manganese dioxide, the I. which is evolved being collected in cooled earthenware jars.

**Extraction from caliche**. The mother liquors, from which the sodium nitrate has been separated as far as possible, are passed down a tower up which passes a stream of sulphur dioxide gas. The I. is precipitated as a black, muddy substance which is purified by sublimation. When pure, I. is a greyish-black crystalline substance with a metallic lustre and a peculiar odour. It has a sp. gr. of 5.0 and melts under pressure at 114° C. On heating it sublimes, giving rise to a purple vapour. It is only sparingly soluble in water, more freely in alcohol, and especially in potassium iodide solution, forming a brown solution. In carbon disulphide and chloroform the solution is purple. With starch I. forms an intense blue coloration, and by means of this test 1 part of I. in 5 million parts of water may be detected. Chemically, I. is the least active of the halogens, but nevertheless combines directly with many metals, phosphorus, etc., and also to a certain extent with hydrogen to form hydriodic acid. Medicinally, I. and its compounds are of great importance. Its solution in alcohol (tincture of I.) is used externally for subduing inflammation. The iodides of mercury, iron, and especially potassium

College of Agriculture and Mechanic Arts at Ames, opened in 1869, now includes an Institution for Atomic Research. The first Fr. visitors were Marquette and Joliet in 1673. I. came to the U.S.A. in 1803 as a part of the Louisiana Purchase, and entered the Union in 1846. Pop. 2,621,100. The state cap. is Des Moines (pop. 178,000). Other important cities: Sioux City, Davenport, Cedar Rapids, Waterloo, Dubuque, Council Bluffs, Ottumwa, Burlington, Clinton, Mason City, Fort Dodge. See J. Brigham, *Iowa: Its History and Its Foremost Citizens* (3 vols.), 1915; I. B. Richman, *Ioway to Iowa*, 1931; Federal Writers' Project, *Iowa: A Guide to the Hawkeye State*, 1938; C. Cole, *Iowa Through the Years*, 1940; W. F. Petersen, comp., *A Reference Guide to Iowa History*, 1942.

**Iowa State University**, co-educational, on the I. R. at I. City, U.S.A., was opened in 1855. It has colleges of liberal arts, commerce, dentistry, education, engineering, law, medicine, nursing, and pharmacy, and a graduate college. The univ. libraries contained 800,000 vols. in 1955, among them an outstanding Leigh Hunt collection. Teaching staff, 700; students, 9100.

**Iowa City**, cap. of Johnson co., I., U.S.A., on the I. R., 23 m. SSE. of Cedar Rapids in agric. area with limestone quarries and an airport. Industries include printing, food products, and wood products. It is the seat of the State Univ. of I. and the State Historical Society of I. Pop. 27,200.

**Iowa River** rises in Hancock co. in the state of I. and flows in a SE. direction, entering the Mississippi in Louisiana co. It is navigable to I. City and is about 350 m. in length.

**Ipecacuanha**, emetic substance obtained from the roots of sev. S. Amer. plants. The true I. is a species of Rubiaceae known by the various generic names of *Cephaelis*, *Psychotria*, and *Uragoga*, and occurs in damp forests of Brazil. It is a small herbaceous plant with a prostrate stem and an annulated root. In medicine it acts as an emetic and stomachic, aids respiration, and increases perspiration. The white I. is a violaceous plant, known botanically as *Tonidium Ipecacuanha*; the bastard I. is a species of Asclepiadaceae bearing the name *Asclepias curassavica*. The active principle of true I. is an alkaloid known as emetine, now used in the treatment of amoebic dysentery. 'Dover's powder' is I. and opium.

**Ipek**, see **Pec**.

**Iphicles**: 1. Son of Amphitryon and Alcmena, twin brother of Hercules. Juno sent 2 serpents to kill the twins in their cradle, but the infant Hercules strangled them.

2. Son of Phylacus and Clymene, whose cattle were famous for their size.

**Iphicrates** (d. 353 BC). Athenian general, son of a shoemaker. He introduced into the Athenian army the *pellustae*, or targeteers, whose armour and weapons, devised by himself, gave them the advantages of heavy and light infantry.

**Iphigenia**, daughter of Agamemnon and Clytaemnestra. Agamemnon had provoked the goddess Artemis (q.v.) by killing her favourite hart. Artemis produced a calm, so that the fleet sailing to attack Troy was detained at Aulis. The soothsayer Calchas advised Agamemnon to sacrifice I. to appease the goddess. According to one legend she d. on the altar; but according to another, Artemis put a hart or a goat in her place at the last moment, and carried her off to Tauris. There I. became priestess in the temple of Artemis, and saved her brother Orestes with his friend Pylades from being sacrificed to the goddess by fleeing with them to Greece, carrying away the statue of Artemis from the temple. I. was worshipped in Athens and in Sparta, and she may have been the goddess under another name. See A. Verrall, *Euripides the Rationalist*, 1895.

**Ipomoea**, genus of Convolvulaceae, consists of about 300 species of herbaceous and shrubby plants of warm and tropical countries; many are cultivated for their showy flowers. *I. batatas* is the sweet potato; *I. purga*, the jalap; *I. pandurata* the wild potato vine; *I. leptophylla* the Bush Moon Flower, which, with *I. horsfalliae*, is grown in hothouses.

**Ipsambul**, see **ABU-SIMBEL**.

**Ipsus**, in anct geography, was a tn of Phrygia, in Asia Minor, where, in 301 BC, Antigonus was defeated and killed.

**Ipswich**: 1. Municipal, co., and parl. bor., and the co. tn of Suffolk, England, at the head of the Orwell estuary, 69 m. NE. of London. I., once a tn of pargeted lath-and-plaster buildings, and storeyed inns, now combines Elizabethan oak with modern steel and concrete. Among places of interest are the Anct House, in the Butter Market, now used as a bookshop, the architectural showplace of the tn, built in 1567; Christchurch Mansion, built between 1548 and 1550, with extensive rebuilding after a fire in 1672, now maintained by the corporation as a domestic and folk museum and art gallery; and Wolsey's Gateway (1528) in College Street, the only fragment remaining of Wolsey's ambitious plan to found a college in I. as a nursery for his Cardinal College at Oxford.

I. was the site of a small Rom. settlement, and throughout the Saxon period I., or Gyppeswyk as it appears in the A.-S. Chronicle, steadily developed, until it attracted the attention of Dan. marauders. The Danes were defeated at sea off the mouth of the Orwell in 885 by King Alfred; but in 991 and 1010 they invaded the tn and set fire to it, levying a fine of £10,000 upon the inhab. In 1200 I. received its first charter, granted by King John. Edward III brought over to England 70 families from the Netherlands who were weavers and wool-workers, and the woollen industry grew rapidly in Suffolk generally. From 1446 I. sent 2 members to Parliament, but in 1818 the number was reduced to 1. In 1518 Henry VIII granted a charter confirming the corporation's anct jurisdiction over the

Orwell estuary as far as what is now the port of Harwich. Among the famous names associated with I. that of Cardinal Wolsey (b. in the tn in 1471) is pre-eminent. Many famous men have served as High Steward of the bor. since 1557, including Adm. Lord Nelson and Field-Marshal Earl Kitchener of Khartoum and of Aspell (Suffolk). Thomas Gainsborough lived here for a time, and many of his famous landscapes depict scenes on the banks of the Orwell. David Garrick began his stage career in I.

The centre of the tn and of its communal life is the Cornhill. Many of the finest shops are in the Butter Market near the tn hall. In High Street is the corporation archaeological and zoological museum. I. has sev. fine churches, the majority in the Perpendicular style: St Margaret's, early 13th cent.; St Peter's, renovated and extended in 1878 under Sir Gilbert Scott; and St Nicholas, with a 14th-cent. nave and aisles. Other churches are St Mary-le-Tower, where King John's charter was received in 1200 by the bailiffs and burgesses, rebuilt in 1860-70; St Mary-at-the-Quay, 15th cent., severely damaged by bombs; and St Lawrence, a lofty church in the Perpendicular style, with an embattled tower and 5 medieval bells. The most famous inn is the Great White Horse, used by Dickens as the scene of an amusing episode in *Pickwick Papers*. A 'Whit Horse Inn' stood on the same site in 1518, when it was probably one of the pilgrims' inns. Other well-known I. inns are the Coach and Horses; the 16th-cent. Black Horse; the Golden Lion in Cornhill; the Old Bell; the Golden Fleece, in the yard of which bull-baiting was a popular pastime; and the Neptune, originally, and now again, a private house, and noted for its oak-panelled rooms and carved woodwork. The present central library was built in 1924, and is a noted repository for Suffolk records. There are also 4 branch libraries. Twelve secondary schools are situated in the tn, and there are a wide variety of cultural organisations and ample provision for further education. I. School, which has a continuous hist. from 1477 or even earlier, now ranks as an independent public school. Formerly estab. in Blackfriars monastic precincts and elsewhere, the school moved to its present site in 1851. I. has 2 general hospitals and 6 public parks in addition to many recreation grounds (507 ac.). The corporation owns the waterworks and transport undertakings, and a modern crematorium.

The industries of I. include large engineering and agric. implement works, tobacco and cigarettes, fertilisers, yeast, textiles, footwear manufs., tanning, printing, brewing, maltings, and flour mills. Among the industrial products are electric motors and dynamos, industrial trucks, mobile cranes and excavators, water control equipment for large-scale irrigation schemes, roller mills, grain driers, air compressors, steel-framed buildings, plywood, wall boards and plastics, refrigerating plant, sacks, bags, and tarpaulins, and

garden furniture. Vessels drawing 19 ft can enter the dock (area 26 ac.) at I., and ships up to 7000 tons can berth at Cliff Quay, a new deep-water quay (1800 ft) constructed in 1923-5 on the E. side of the Orwell. The docks and quays are equipped with modern electric cranes and all rail facilities. The airport of I. (opened in 1930) on the outskirts of the tn has now been reopened, after requisition, as a public aerodrome with scheduled services to the Continent. Pop. (est. 1953) 107,500.

2. City of Queensland, Australia, on the Bremer R., 25 m. W. of Brisbane, centre of an important coal-mining and farming dist. Industrial activities include large woollen mills and railway workshops. Pop. 40,100.

Iqbal, Sir Muhammad (1876-1938), Indian poet, philosopher, and politician, whose name is linked with the first demand of his Muslim co-religionists for the creation of Pakistan. B. Sialkot, Punjab, his ancestors were Kashmiri Hindu converts to Islam. Educ. at Sialkot, Lahore, Cambridge, and Munich, qualifying for the Bar in London. I. returned to India in 1908, practised law, and entered local politics. Knighted in 1923. I. became a member of the Punjab legislature from 1927 to 1929. He was president of the All-India Muslim League in 1930 when the demand for Pakistan was made a major political objective of the party, and attended the 1st Round Table Conference in London convened to frame a constitution for India. He d. at Lahore.

For many years I. had been outstanding as a Muslim thinker and poet. Impressed by the vigour of W. thought, he tried to infuse some of this vigour into Islamic thinking in India. His first major work was a Persian *masnavi* sequence, trans. into English as 'Secrets of the Self.' With its gospel of the creative ego trying to achieve freedom and a fuller development of personality, it took the younger generation of Indian Muslims by storm. But he also insisted that the true development of the self involved sinking the self in the service of a community inspired by common spiritual traditions. He composed mainly in Persian, but also wrote a good deal in Urdu to reach his own Indian public.

Iquique, city and fine modern harbour in N. Chile, cap. of the prov. of Tarapacá, 820 m. N. of Valparaíso, on the Pacific. I. owes its commercial importance chiefly to the export of nitrate of soda, borax, and iodine. It is connected by rail with the city of Tarapacá and with various mining centres, and has a local airline to Antofagasta. I. was founded in the 16th cent. upon a peninsula between the Colorado and Cavanha headlands. Twice, in 1868 and 1875, the tn was nearly destroyed by an earthquake and tidal wave, and as a result of the war between Chile and Peru it was ceded to the former by treaty in 1883. Water is brought to the city from Pica 55 m. away, an oasis settled by Sp. soldiers in the 16th cent. Large deposits of guano are found on

the coast. The climate is rainless. Pop. 48,000.

Iquitos, tn of N. Peru, and cap. of the dept of Bajo Amazonas de Loreto, situated on the Marañón, Upper Amazon, 2300 m. from the mouth, and 1268 from Lima. It is a Peruvian flotilla naval base. There is a wireless station and a regular air service. It trades in tropical agric. products and hardwoods. Pop. estimated at 34,500.

Iran, or Eran, originally the name of the great plateau bounded on the N. by the Caspian Sea and Turanian Desert, on the S. by the Persian Gulf and Indian Ocean, on the E. by the Indus, and on the W. by Kurdistan and the Tigris. The name, which is now the official designation of the Persian kingdom, is derived from *Aryāna*, 'the country of the Aryans.' Strabo declared that the name and language extended to the Persians, Medes, Sogdians, and Bactrians, as well as to the inhab. of the SE. of I. See PERSIA.

Iranshahr, dist. and tn of Persian prov. of Baluchistan. Pop. of tn 4000.

Irapuato, tn of central Mexico in the state of Guanajuato. It is an important railway junction between Mexico and Guadalajara. It is a mining, manufacturing, and agric. centre. Pop. 32,400.

Iraq (Mesopotamia, 'the land between the rivers'), Middle E. kingdom extending from Kurdistan on the N. and NE. to the Persian Gulf on the S. and SE., and from Persia on the E. to Syria and the Arabian desert on the W., its position being between 37° and 48° long., and from 37° to 30° N. lat. The country has an area of 160,000 sq. m. and includes the former Turkish vilayets of Mosul, Bagdad, and Basra. Estimated pop. about 5,000,000; that of the provs. is as follows: Bagdad, 805,293; Hillah, 261,903; Diyala, 273,336; Diwaniyah, 383,787; Dulaim, 193,294; Kerbela, 276,670; Kut, 224,792; Basra, 352,039; Amara, 308,108; Muntafiq, 369,806; Mosul, 601,589; Arbil, 240,273; Kirkuk, 285,878; Sulaimani, 222,732. In 1950-1 all but a few thousand Jews went to Israel. There are about 101,000 Christians and 41,000 of other faiths: Yazidis, Mandaeans, Sabbis, etc.; of the Muslims the Shi'a slightly outnumber the Sunni.

**Physical features.** I. may be divided into 3 main divs.: the Plain, the Uplands, and the Highlands. The plain consists of the delta of the Tigris and Euphrates, and extends roughly from the Persian Gulf to a line joining Faluja with Khanaqin. The soil is alluvial, and there is no stone. The rivs. run along ground a few feet higher than the rest of the plain, which is liable to be flooded when the rivs. are high. This happens each spring when the snows in the mts melt; the rise of the Tigris at Bagdad is sometimes as much as 23 ft and of the Euphrates at Faluja 14 ft. At no point is the plain more than 150 ft above sea level. In the plain the ann. rainfall is about 6 in. There are 3 chief forms of irrigation employed in I.: (1) perennial, in which the canals from the riv. are so designed that the water in the

riv. will always 'command' the land, or flow on to it; (2) inundation canals, in which the spring flood will 'command' the land and give enough water for summer crops—an unscientific form of irrigation; and (3) lift irrigation, in which water is raised by machines to flow on to fields close to the riv. With the advent of oil, motor pumps are often used for this purpose. Modern works are the Hindiya barrage on the Euphrates, the Kut barrage to irrigate land W. of the Tigris, the Bed'a regulator, and the DIALA weir at Table Mt. Work has been done on the flood escape and reservoir in the Habaniya depression, and by 1956 good progress had been made with the first part of the scheme for letting the Tigris flood into the Tharthar depression, though the canal system for irrigation was not completed. In 1955 there were 14 irrigation schemes on foot, to be financed out of the oil revenue. The uplands div., or the area between the plain and the highlands, consists in the SW. portion of a gypsum desert, but in the N. and NE. of rolling plains with good soil and a rainfall thrice as heavy as that in the plain. Mosul, Kirkuk, and Arbil, the chief tns, are situated on rich soil between 700 and 1200 ft above sea level, the rain being heavy enough to grow winter cereals extensively. There is no irrigation to speak of, though round Arbil and Kirkuk it is carried on by the anct system of *kariz*. A *kariz* is a tunnel leading water by a gentle gradient from a spring in the hills to the spot required. It is made by sinking a row of shafts and digging the tunnel between them; they are left open for use in cleaning the passage. The highlands, to the NE. of a line drawn from Faish Khabour to Khanaqin, are crossed by a number of ranges of mts, rising at some points to 14,000 ft. There are many beautiful valleys and plains among these mts, and the valleys are full of flowers, mainly oleanders. Rainfall is heavy in the winter and may continue until May. Fruit is grown in the N., tobacco in the S. highlands, especially in the dists. of Sulaimaniya and Rania.

**Iraqi tribes.** Outside the cities the pop. of I. is almost entirely tribal, i.e. divided into communities of kindred families under their own chiefs or sheikhs. It is easy to observe in I. the various stages of tribal development from the nomad of the desert to the riverain cultivator, and in the transit from desert to tn (where that has taken place) the tribes have lost little of their tribal characteristics and customs. In the plain there are Bedouin tribes, nomadic pastors of camels, sheep, and horses; others are semi-nomadic or semi-settled and marsh tribes. The 3 chief Bedouin tribes of I. are the Shammar, living between the Tigris and Euphrates in the N., the Dhafir in the S., and elsewhere the Anazah. Blood feuds still prevail, and the tribes have their own unwritten codes and methods of punishing offenders or settling quarrels, and the I. Gov., in its administration, has to pay due

regard to tribal custom. Wealthy cultivators still take a pride in dwelling in black tents, while a chief of the marshmen may live in a house, though his guest house is still built of reeds in the traditional style.

**Constitution and administration.** By a treaty between Great Britain and I. (1930), Britain undertook to give I. such advice and help as might be wanted without prejudice to the sovereignty of I. and to secure its admission to the League of Nations as soon as possible. I. was admitted to the League in 1932 and became an independent sovereign state in that year. A further treaty of alliance and mutual help for 20 years was signed with Britain in 1948, but was repudiated by public opinion in I. Legislative power is vested in parliament and the king, and the parliament consists of the Senate and the Chamber of Deputies. I. is divided into 14 main divs. (liwa), each liwa being administered by a 'mutasarrif' who is responsible to the ministry of the interior but is also the agent and representative of the other ministries. Each liwa is divided into 2 or more 'qadhas,' administered by 'qaimmaqams,' and each qadha into 2 or more 'nahiya,' each administered by a 'mudir.'

**Defence.** Military service is compulsory at the age of 18, usually for 2 years. The army consists of 3 divs., 1 plain and 1 mt., each with 3 infantry brigades (of 3 battalions), training brigade, 3 artillery regiments, 1 signal battalion, 1 engineer battalion, second line transport, etc.; whereas the 1 mechanised div. is to consist eventually of 1 armoured car regiment, 1 field artillery regiment, 1 engineer company, and 1 infantry brigade (4 battalions). There are service training schools, cadet and staff colleges.

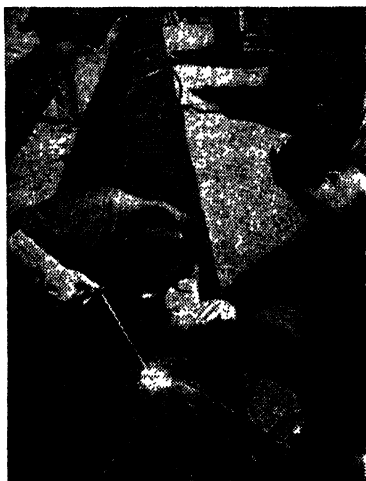
**Education.** Primary education is free and compulsory. In 1953-4 some 200,000 boys and 60,000 girls attended school. There are 92 secondary schools for boys with 27,000 pupils, and 42 for girls, with 8000; foreign schools cater for 10,000 boys and 1100 girls. There is an Institute of Fine Arts and schools for technical engineering, agriculture, domestic science, health services, and nursing. There are colleges for arts and science, engineering, medicine, law, commerce and economics, pharmacy and chemistry, teachers' training, theology, and police. It is expected that these will soon be integrated into a univ.

**Health services.** These are under the Gov. Health Service. The Faculty of Medicine includes schools of medicine, pharmacy, and midwifery; the courses for nurses and officers of health last 3 years, that for pharmacists 5 years, and the full medical course 7 years. The faculty grants its own degrees. Hospitals provide more than 7000 beds for patients. Dispensaries, some of them mobile, supplement the work of the hospitals. There is also a dept of preventive medicine.

**Justice.** The higher courts are, in civil law, a court of cassation in Bagdad and 4 courts of appeal in Bagdad, Basra,

Mosul, and Kirkuk. A tribal court of cassation was created in 1950; in criminal law there is the court of cassation and 6 sessions courts, 4 of which are the civil courts of appeal; and in religious law courts of revision, both Sunni and Shi'a, sit in Bagdad.

**Agriculture.** Agriculture is still the chief occupation; much of it is 'extensive' (i.e. a light amount of work put into a large extent of land) cultivation of wheat and barley in winter and, in summer, such crops as rice, maize, sorghum, and sesame. The country round Basra produces three-quarters of the world supply of dates. Cotton has been introduced and 50,000



*Iraq Petroleum Co. Ltd*

WELDING A 24-INCH PIPELINE, IRAQ

bales were produced in 1951-2. The settled cultivators are a different class from the pastoral nomads; flocks of sheep and goats and herds of camels cover enormous areas and the desert produces fine grazing after good rains. The chief exports are dates, wool, grain (mostly barley), hides and skins, cotton, liquorice, and gail-nuts; there is also a large transit trade, mostly with Persia, worth £26,000,000.

**Oil.** The Turkish Petroleum Co., an international company comprising Brit., Amer., Dutch, and Fr. interests (it changed its name to Iraq Petroleum Co. in 1929), first found oil near Kirkuk in 1927. Five years later the construction was begun of a 12-in. pipeline system to the Mediterranean ports of Tripoli and Haifa, and by 1934 these 2 terminals were each receiving crude oil at a rate of about 2 million tons a year. Exports of oil thus continued steadily until 1948, when fighting between Arabs and Jews in Palestine resulted in the complete cessation of the flow of oil to Haifa, a flow never since

resumed. In the following year, however, a 16-in. line from Kirkuk to Tripoli was commissioned; and in 1952 a 30-in. pipeline from Kirkuk to the Syrian port of Banias was finished. These pipelines made possible dispatch from the main field of Iraq, the Kirkuk field, and from what is known as the Mosul field, of over 24 million tons in 1955, though the disappointing N. field contributed only 1½ million tons to that total.

Meanwhile fields in the S. of I., operated by the Basra Petroleum Co., as

and so on. In order that the beneficent work of this board should not be interrupted by the abrupt fall in revenue which resulted from the sabotaging of the 3 pumping stations in Syria in Nov. 1956, the Iraq Petroleum Co. in 1957 arranged to make to the I. Gov. an interest-free loan of £25 million. In mid 1957, when the 3 pumping stations in Syria were still out of action, I. was exporting about 10 million tons annually to the Mediterranean. How soon and by what extent her exports of oil to the Mediterranean



*Iraq Petroleum Co. Ltd*

THE 555-MILE 30-INCH PIPELINE FROM KIRKUK TO BANIAS, NEARING COMPLETION  
IN 1952

The pipeline's capacity is 17 million tons a year.

associate of the Iraq Petroleum Co., were being developed. Oil was first exported from the Basra field from the terminal at Fao in 1951; and in 1956 the volume thus exported exceeded 8 million tons. Revenues from oil—the I. Gov. enjoys 50 per cent of the profits of oil operations within I.—have proved a godsend to a country which previously lacked the finance to develop its abundant natural resources. In the utilisation of these oil revenues, I. has shown remarkable patience and far-sightedness. For in 1950, in anticipation of the larger revenues she has since obtained, I. formed a Development Board which, having command of 70 per cent of the oil revenues, has already done much in the spheres of flood control, irrigation, better communications,

will increase depends on factors not wholly within I.'s control. The export of oil from S. I., however, is confidently expected to increase. For the purpose of that export, facilities for laying a pipeline from the Basra fields through the sheikhdom of Kuwait, off which deep water lies, have been discussed. I. has undoubtedly vast reserves of oil, but her main oil-field lies, unlike the fields in Kuwait, Saudi Arabia, or Persia, far from the seaboard.

*Transport.* A metre gauge railway runs from Basra to Bagdad, with short branches to Nasiriya and Kerbela; from Bagdad the line continues to Arbil and Baiji with a branch to Khanaqin. There is a standard gauge line from Bagdad to the Syrian frontier via Mosul, and there it

connects with the Turkish railways. The total length of track is rather over 1000 m. Owing to lack of road metal, good roads are few—only 750 m. are metalled—but it is possible to motor almost everywhere in the plain, though not, of course, in the mts and marshes. Water transport is very important. Steamers ply regularly between Bagdad and Basra and in April and May between Bagdad and Mosul. In late summer and autumn steamers often stick in the mud in the shallows S. of Bagdad; none ply on the Euphrates. Sailing craft are much used, but as the current is strong and the prevailing wind NW, they have to be poled or towed upstream. Rafts (keleke) float down from Mosul; the poles are sold in Bagdad and the skins taken back to Mosul for further use. The Shatt al-Arab, the combined stream of the Tigris and Euphrates, is navigable for ocean-going ships up to Basra. There is communication by air in all directions.

**Holy cities.** Nejad, Kerbela, Kadhimain, and Samarra are sacred to the Shi'a Muslims, and pilgrims come from Persia, India, and other countries as well as from I. Story says that the camel bearing the dead body of Ali (q.v.) stopped at Nejad and the corpse was buried there. At Kerbela Husain, the son of Ali, was killed with 300 followers and it is a privilege to be buried near one or other of these shrines. Indeed bodies are brought from Persia for interment there.

**Antiquities.** The ruins of Babylon (q.v.) are perhaps the most imposing of the Assyrian and Babylonian cities which have been excavated, and the Bagdad museum is rich in finds from these sites (see also ASSYRIA and BABYLONIA). The ruins of a Parthian palace and town are at Hatra. Little remains of medieval Arab architecture, partly because brick was the building material and partly because of the turbulent hist. of the land. The palace of Ukhaidir survives because of its isolation, and some of the mosques may be old, though visitors are not encouraged. In Bagdad itself parts of the Mustansiriya college and of a late Abbasid palace survive.

**History since 1914.** When Turkey entered the First World War as an ally of Germany, a Brit. force was landed at Basra to protect Brit. interests in the Persian Gulf. This move led to an advance into the country and eventually to the expulsion of the Turks. A proclamation was issued that the British had come to free the people of I. from the Turks and wished for a return of their old prosperity. I. became a Brit. mandate in 1919 and in 1921 Faisal was chosen as king. The foundation of a strong and independent state was not accomplished without opposition and bloodshed. There was a serious rising in the Mosul region in 1920 and further disturbances in the SW. and Mosul in 1921 and 1922; order was at last restored with Brit. help and programmes of road-making, irrigation, etc., were started. In 1930 relations between I. and Britain were defined in a 25-year

treaty of alliance, and 2 years later the mandate ended, though under the treaty Britain retained certain rights in the country in return for continued aid. King Faisal I. in 1933 and was succeeded by his son Ghazi, who was killed in a road accident in 1939; his young son (b. 1935) followed as Faisal II, with his father's cousin, Abdul Ilah, as regent. I. now reverted to a regime of intrigue and violence in which the army played a considerable part. Order was restored under Nuri al-Said, who persuaded I. to side with Britain in the Second World War. In 1941 a *coup d'état* was carried out by a group of army officers, a former prime minister, Rashid Ali al-Gailani (a descendant of the Muslim saint, Abd al-Qadir),



E.N.A.

A YOUNG KURD OF BAGDAD

and Haj Amin Al Husseini, the ex-mufti of Palestine, backed by Ger. gold and promises of Ger. military help. A first attempt in Jan. failed, but in April the rebels seized Bagdad in the absence of the regent and attacked the Brit. air base near Habbaniya. Brit. troops landed at Basra and a column from Syria crossed the desert, relieved the R.A.F., and entered Bagdad at the end of May. Rashid Ali and his chief supporters fled to Persia.

Nuri al-Said had a share in promoting the Pan-Arab congress of Sept. 1944 out of which grew the Arab League. In 1947 all Brit. forces were withdrawn except for the R.A.F. bases at Shaiba and Habbaniya. In 1948 an Anglo-Iraqi treaty was signed but immediately disowned because it did not 'realise Iraq's national aims.' The end of the Brit. Palestine mandate and the proclamation of the state of Israel brought the Palestine situation to a climax and I. troops joined in the Arab invasion of Israel. In 1953 the regency ended and the effective rule of Faisal II began. After 1948 it seemed for a time that I. might revert to the unsettled political conditions of a few years

earlier, but stability returned in some measure. The vast oil revenues encouraged considerable social and economic progress and brought prosperity which gave additional strength. Although sympathetic with the general principles of Pan-Arabism, I. remained outside the Egyptian sphere of influence. In 1955 the signing of a treaty with Turkey, the Bagdad Pact (q.v.), later joined by Pakistan, Persia, and Britain, showed I. to be a centre of stability in the increasingly disturbed Middle E. area, and one amenable to W. ideals. The Suez crisis of 1956 shook this alliance severely but, led by Nuri al-Said, I. maintained friendly relations with Britain, though deprecating her action in Egypt. During the crisis Syria cut the oil pipelines which ran through her ter., thus damaging I.'s economy substantially, but repair work on the pipelines began in Mar. 1957.

Following on the creation of the United Arab Rep. (q.v.), on 14 Feb. 1958, the kings of I. and Jordan (q.v.) signed an agreement uniting their kingdoms in the 'Arab Federation.' The federation was to be open to other Arab states; the cap. was to alternate between Bagdad and Amman every 6 months. King Feisal of I. was created the first head of the federation, with King Hussein of Jordan as his deputy; both retained constitutional authority in their respective kingdoms.

See R. Coke, *The Heart of the Middle East, 1925, and Baghdad, the City of Peace*, 1927; E. Main, *Iraq, from Mandate to Independence*, 1935; H. A. Foster, *Making of Modern Iraq*, 1938; P. W. Ireland, *Iraq, a Study in Political Development*, 1937; H. Khadduri, *Independent Iraq since 1932*, 1951; S. Longrigg, *Iraq, 1900-1950*, 1953.

Iraq-i Ajami, formerly a prov. of Persia, almost corresponding to the anc. Media, stretching from the Mesopotamian plains on the W. to the great desert of Persia on the E. It was known to the Arab geographers as *al-Jibal* (the Mts) and came to be known as I. A. in the 12th cent. It included Hamadan, Isfahan, Qom, Kaaban, Rai, Qazvin, and Zanjan.

Irawadi, or Irrawaddy, chief riv. of Burma, is formed by the confluence of the 2 arms of the Malikha and Meh-kha, which rise in the NE. of Assam, near the Tibetan frontier, a short distance above Bhamo. It follows generally a course from N. to S., a total distance of 1500 m., and falls into the Bay of Bengal, between the Bay of Martapan and Cape Negrais, through a wide delta with nearly a dozen mouths. The delta is a fertile rice-growing dist., but only 2 of the mouths, the Bassein and the Rangoon, are navigable for big boats. The chief tribs. are the Chinthein and the Shwell, and the chief tns on its banks are Bassein, Rangoon, Prome, Henzada, Myingyan, Magwe, Pakokku, Mandalay, and Bhamo. The riv. is the great highway for commercial traffic, and drains an area of about 158,000 sq. m. of very fertile land. See also BURMA, SECOND WORLD WAR, CAMPAIGNS IN.

Irbbit, Russian tn in the Sverdlovsk Oblast, 125 m. NE. of Sverdlovsk. It was founded in 1633. From the mid 17th cent. it had a famous ann. fair, second largest in Russia, attended by many thousand merchants; this was discontinued in 1930. Pop. (1933) 23,500 (1897, 20,000; 1926, 12,000).

Ireland, John (1879- ), composer, b. Bowden, Cheshire. He was educ. at Leeds Grammar School and at the Royal College of Music, studying under Stanford. He began with concerted chamber music and songs. Two violin sonatas followed, and these estab. his reputation at once. His best-known subsequent works are a pianoforte sonata, a symphonic rhapsody, *Mai-Dun* (1921), and a piano concerto (1932). I. has also written a large number of piano pieces and songs, one of the best-known of the latter being the setting of Mascfield's *Sea Fever*. Sev. song-cycles are important, and all his songs are distinguished by his sensitive choice of words from the finest Eng. poetry, and by the lyrical beauty and sincerity of their music, which is also found in the piano music. Character and originality mark all his work. See study by R. Hill in A. L. Bacharach's *British Music of Our Time*, 1946.

Ireland, William Henry (1777-1835), forger, inherited the interest of his father, Samuel I., author, in the works of Shakespeare; but in him it took the form of inventing documents concerning the poet, and imitating his handwriting and signature. The forgeries were so well executed that they deceived not only Samuel I., but such men as Dr Parr, Sir Isaac Heard, and Dr Warton. Encouraged by his success I. wrote 2 plays, *Vortigern* and *Roxena* and *Henry II*, which he ascribed to Shakespeare. The former was produced by Sheridan at Drury Lane in Mar. 1796. Malone exposed the fraud, which the perpetrator acknowledged in his *Authentic Account*, 1796. This was expanded (1805) into his *Confessions*.

Ireland (Irish *Eire*; Lat. *Hibernia*; in the 6th-13th cents. frequently *Scotia*; poetic *Erin* (q.v.); also, in anc. times, *Iuverna*, *Juvernna*, and *Ierne*, the name used by Strabo), is lying to the W. of Great Britain, from which it is separated on the NE. by the N. Channel (13 m. from Fair Head to the Mull of Kintyre in Scotland), on the E. by the Irish Sea (q.v.), and on the SE. by St George's Channel (q.v.). On the N., W., and S. it is washed by the Atlantic. In shape I. is an irregular rhomboid. Its greatest length (from Fair Head in the NE. to Crow Head in the SW.) is 302 m., and its average breadth is 110 m. The historic div. of the is. into the provs. of Ulster, Munster, Leinster, and Connacht (qq.v.) remains, but politically I. is now divided into 2 states, the Rep. of I. and N. I., the latter of which is part of the U.K. of Great Britain and N. I. Area (land) 31,838 sq. m.; total pop. 4,291,423. This article deals with Irish hist. prior to 1922, and with Irish art. For later Irish hist., and for



individual details of the 2 divs., see IRELAND, NORTHERN and IRELAND, REPUBLIC OF. See also IRISH ARCHITECTURE and IRISH LANGUAGE AND LITERATURE.

*History.* The earliest hist of I. is not unnaturally wrapped up in myth and legend. We have little evidence in any authors of note regarding I., and factors which contribute greatly to the hist. of other nations are lacking here; hence we are compelled by the little we have to rely upon the probabilities suggested by research. Evidence of the inhabitation of I. by Neolithic peoples indicates that even after the Celtic settlement of I. great numbers of the earlier inhab. survived, and intermarriage between the Celtic and pre-Celtic tribes took place to an even greater extent than was customary in other lands settled by Celts (q.v.). The first Celtic settlement of Goidels occurred during the 6th cent. BC, and about 3 cents. later we find a further Celtic settlement of Brythones. Ptolemy, who gives us our earliest knowledge of I., states the names of at least 16 tribes. These names bear a striking resemblance to the tribal names of the Celts in Britain; e.g. we find the name Brigantes in both countries. The div. of the country into provs.—Ulster, Munster (E. and W.), Leinster, and Connaught—seems to have been made by the earliest Celtic settlers.

By the beginning of the Christian era we may say that I. was populated by Celts (Goidels and Brythones), together with a sprinkling of the Neolithic people and some Picts, who probably came from Scotland, and who occupied but a small portion of the country. Such is the explanation that hist. gives of the early settlement of I. The Irish, however, account for it in a very different way—a series of legendary stories, in which mythical characters, who have become almost historical, play an important part. According to legend, the first invaders came under Partolan, occupied the is. for 300 years, and were then killed off by a great plague. They were followed by the Nemedians, who came from Scythia and had a great struggle with the Fomorians. The Fomorians were ultimately successful and the Nemedians were driven out and went away to Greece. From thence, after various adventures, they returned to I., this time being given the name of Firbolgs, and this tribe settled in I. and have been held to be represented there down to the 16th cent. The next set of invaders were the tribes of the God Danu, who finally overthrew both the Firbolgs and the Fomorians. The tribes of the God Danu are supposed to have come originally from Greece but to have been driven up to Scandinavia, and from thence to have invaded I.; they held supreme command of I. down to the time of the arrival of the Milesians. The Milesians are supposed to have come originally from Scythia, to have sojourned in Egypt, and to have finally invaded I. and conquered it. This myth is historically the most important since the Milesians are held by historians

of the 16th cent. to have given the line of the high kings to I. down to the 12th cent. Names are given to the early kings and records of their deeds were kept, but of these we may take little or no notice until the appearance at the end of the 4th and beginning of the 5th cents. of Niall of the Nine Hostages. He is held to have finally set up the central kingdom of Tara (q.v.) and to have led expeditions of the Irish overseas. It has not yet been fully recognised to what an extent I. and Wales were connected during this early period, and it must be pointed out here that the expeditions of Niall of the Nine Hostages synchronise with the departure of the Romans and the raids of the Picts and Scots into Britain. Certain it is that colonies of the Irish were formed in Wales and in W. Wales (Devon and Cornwall), and it is to this period in Irish hist. that we can best trace the foundation of these colonies.

The foundation of Emania, c. 300 BC, seat of the kings of the line of Ir in the N., is regarded by Tigheaneach, the famous historian and abbot of Clonmacnoise in the 11th cent., as heralding the dawn of Irish hist. It may be said, generally, that Irish hist. is reliable as to genealogies and the broad features of the prin. events from the Christian era, and that it is fairly reliable, from a remote period, as a guide to such outstanding events as the foundation of Emania and the victory of Labraidhe (Lowry), grandson of Laoghaire, over the usurper (Coffey) at Dinn Riogh on the Barrow. It is, however, not until the time of Patrick that there are definite political subdivisions in I. as distinct from the mere supremacy of certain families in various parts of the country. A short time prior to the Christian era the most powerful kings in I. were those who ruled in Emania. Thus to Tuathal is attributed the foundation of the kingdom of Meath and the great dynasty of Tara, which governed the clans of the open plain from the sea to the Shannon and later appointed branches to rule over those of more than half of I. There were 2 other dynasties the origin of which is assigned to the 2nd cent.: the Leinster and Munster, whose kings were rivals of Conn, famous grandson of Tuathal; and these 3 leading dynasties supplied the independent rulers of all parts of I. except Ulaidh (Ulster) for cents. and struggled with each other for the supremacy of the country. Tara reached its zenith in the reign of Cormac MacArt (q.v.), a grandson of Conn, who is one of the prin. figures in the copious literature on the exploits of the Fianna or 'Fenians.' The kings of Tara had attained such power in the 4th cent. that they were then waging war in Britain and even sending military expeditions to the Continent. The Rom. dominion was on the wane and the Gaels came over to make common cause with the enslaved Britons and Picts against the Romans. One of the most famous leaders of these expeditions was Niall, King of Tara, whom we have mentioned above,

who was eventually slain on the banks of the Loire (AD 405). During Niall's reign his 2 half-brothers, Brian and Fiachra, estab. themselves in the palace of Cruachan (in Roscommon) and thenceforth the kings of the W. kingdom were chosen exclusively from their descendants. Other new kingdoms were founded in the NW. near the site of the modern Derry. The state of Ornel was also founded at this time. It had been wrested shortly before the Christian era from the Clanna Rury, the most powerful kings of I. Their sway extended from Ulaidh, and in early times spread over nearly all the N. and as far S. as Tallte in Meath; but following the 7 years' war between Connor and Maëve of Connacht, in alliance with Fergus of the Red Branch, the power of the Clanna Rury steadily declined.

Immediately before the introduction of Christianity we find the permanent estab. of 4 kingdoms ruled over by the posterity of Conn—Tara, Oirghialla, Alleach, and Cruachan. The normal head of this confederacy was the chief king in Eire, styled High King, a purely nominal title but implying a superiority which was not recognised by the dynasties of Ulaidh, Laighin, or Caiséal (Ulster, Leinster, and Cashel). These 7 independent states into which the is. was divided at this time remained—albeit modified under changing conditions—the spheres of political influence in I. until the whole Gaelic fabric was destroyed at the battle of Kinsale in 1603; but to trace the fortunes of these 7 dynasties is the purpose of any hist. of Gaelic I. Their supremacy in their own kingdoms remained permanent, and the rivalries which often convulsed them were between competitors of their own families. It is possible that Christianity conduced to this political stability. The traditional Five Provs. (Ulaidh, Connacht, Laighin, and the 2 Mumha) are popularly supposed to be represented by the modern 4 provs.; but the representation is not wholly accurate. The first div. into 4 provs. was eccles. when the Synod of Kells (1152) grouped the Church around the arch-dioceses of Armagh, Cashel, Tuam, and Dublin. The creation of prov. 'presidents' in the 18th cent. by the Tudors gave them definite recognition in political affairs. The accepted index to the internal political constitution of these Irish states is the 'Book of Rights' (Leabhar na g-Ceart), traditionally ascribed to St. Benignus, disciple and successor of St. Patrick.

The religion of early I. cannot be easily traced. The inhab. appear to have had many gods, in fact, to a certain degree, to have been pantheistic; there is evidence also to show that they were fire worshippers, and we know that right up to the 15th cent. the sacred fire at Kildare was kept burning. The most tangible side of the belief of the early Irish, however, is their undoubting faith in the existence of fairies. The tribes of the God Danu are held, after the invasion by the Milesians, to have disappeared into the hills and to have reappeared as fairies.

We have also lists of the names of the Irish gods, but these gods seem to have been very shadowy beings concerning whom little is known. The priests or druids of the country play an important part as teachers, prophets, and wizards. Their powers were great, and it was supposed that they were able to perform miracles. One side of the belief of the Irish must not be overlooked here, since it survived for some very considerable time during the Christian period, and that is the idea that after death certain changes could be made by the dead person, and that he could appear now as a wolf, now as a fish, and again as a bird. Only certain people were held to have this power, but in one case at least it was held that all the inhab. of Ossory could change themselves into wolves at will.

Irish historians aver that the country had reached a high state of civilisation at the coming of St. Patrick (q.v.). The Irish Milesians are described as a martial and cultured people who, in an age when most of Europe was still in an uncivilised state held their Ollamhs, poets and historians, in equal reverence with their royal chiefs. Contr. before the Christian era, they are said to have estab. a Feis (q.v.) or central parliament which assembled triennially at the Ard-ri's or High King's court on the Hill of Tara. Thither came the Filés or poets, the Seanchuidhes or chroniclers, the Ollamhs or teachers, the Brehons or judges, the druids or priests (considered by some to have been rather magicians and teachers than priests), and the chieftains and kings of the various tribes, to approve or amend the old laws, make new laws, dispense justice, and to record their annals. The laws made in ant. I., known to-day as the Brehon laws (q.v.) were, for that remote period, so wonderfully just, wise, and equitable as to win the admiration of modern law students. Again, the beautifully wrought brooches and other ornaments of the Irish of pagan days, still extant and preserved in Irish museums, reveal their progress in art and refinement in dress.

Some of the Irish are said to have been Christians when St. Patrick arrived in 432, but it is a fallacy to suppose that the country had been partly converted before then. Christianity had already been the official religion of the Rom. Empire for a cent.; the Irish and Romans had for a long time been in close contact, both commercially and in warfare; there was a constant influx of Brit. slaves and continuous intercourse between the British and the Irish—from all of which it is reasonable to suppose that Christianity was known and practised among the Irish before the coming of St. Patrick. Some of the Irish saints, such as Ailbe of Emly, Declan of Ardmore, and others, are said to have been Christians when St. Patrick came, and to have submitted to him. But the number of Christians in I. then must have been small, and there was no organised Christian Church before the time of St. Patrick. The relations between I. and Britain were very intimate. A Brit. Christian

Church had certainly been founded long before this date. The growth of Pelagianism in Britain had, before the end of the 5th cent., made it necessary for Rome to send missionaries to stamp out the heresy, and one of these missionaries, Palladius, was certainly sent to I. Christianity, however, whilst probably well known in the S., had made little progress in the N. and W., hence it was to these parts that Patrick gave his own personal attention. He himself, born in Britain, had been enslaved and had spent 7 years of early manhood amongst the Irish, hence he was familiar with their language and customs. He took with him at least 2 followers who spent their time in the S., spreading the gospel and organising the churches. His success was great, but has probably been overrated; in any case he found great opposition, and he allowed numberless practices which did not actually run counter to the doctrines of Christianity, and which had been accepted by the Irish in pre-Christian days. The system of society made it essential that he should convert the heads of the tribes before the faith would be accepted by the tribespeople, and he succeeded in establishing a system by which native Irishmen became priests and in turn converted their brethren. Schools and churches were erected, and the see of Armagh estab. I. in this way became definitely connected with the W. Church. Bishops were consecrated and the land was divided into dioceses which probably coincided with tribal divs. The Church was, however, during the cents. which followed, to adopt a very different system from that set up by Patrick. The Irish Church has to a very great extent been regarded as a monastic Church, but this was certainly not the system of St Patrick. The Church was founded on practically a personal basis; religious colonies originating from one centre became and remained daughter settlements of the parent body. The head of a religious foundation was the possessor both of spiritual and temporal rights, and frequently it came to pass that the headship of a religious foundation passed entirely into lay hands.

The monastic system was early introduced into I., although it was not until Christianity had gained firm hold on the country that the form usually associated with I. appeared. The earlier type seems to have been somewhat loose and to have led to much disorder. Further, the Irish bishops did not have any territorial jurisdiction and the consequence was that the number of bishops was very large. Each tuath, or tribe, had, however, a bishop who was recognised as an official member of the tribe and who had a considerable amount of influence and power. Judged by the standards of W. Europe the Church in I. was morally somewhat lax, but this was probably due as much to the struggle between the old and new religions as to anything else. Finian was the founder of the famous monastery at Clonard, which was the beginning of the foundation of

that series of monasteries which made I. the centre of learning for W. Europe. Scholars flocked to these monasteries, which were simply encampments of students, i.e. a series of mud huts built by the students themselves. Here they lived and provided themselves with food by their own labour, and received their learning in the open air. These monastic settlements were conducted on lines very much more severe than the earlier had been. The monks were shut off entirely from the laity, and the sexes were separated. This monastic movement seems also to have been accompanied by much missionary enterprise. Missionaries of the Celtic Church went everywhere—Columba (q.v.) to Iona, Aidan (q.v.) to Northumbria, Columbanus (q.v.) to W. Europe. In the Orkneys the Celtic Church was estab., and Ieoland, when discovered by the Vikings, was found to have been visited previously by missionaries of the Celtic Church. The Saxon kingdoms in the N. and centre of England owed their conversion to Irish missionaries from Iona. St Aidan became the first Bishop of Northumbria and was succeeded in Lindisfarne by 2 other Irish monks. The Irish missionaries had brought learning as well as religion, and Northumbria became the cradle of Anglo-Saxon literature. The Irish missionaries soon found themselves in opposition to those of Rome. The Rom. tonsure had probably been introduced into I. by St Patrick, but the Irish had certainly gone back to the old druidic tonsure, whilst on the matter of calculating Easter they had remained true to the Jewish method. The following were the more celebrated saints of I. and the schools with which most of them were connected: St Benignus, a native of Meath, favourite disciple of St Patrick and his successor as Archbishop of Armagh; St Brigit, who founded the most famous convent in I., at Kildare; St Ciaran, of Meath, who founded the monastery and school of Clonmacnoise on the Shannon, in which many important Irish annals were compiled; St Brendan, who founded the monastery of Clonfert; St Finian, of Moville, who founded the school of Moville (near Newtownards); St Comhgall, a native of Ulaidh, who founded in that dist. the monastery of Bangor, whose fame rivalled that of Clonard and in which many of the Irish missionaries were educ.; and St Carthach, of W. Munster, who founded the famous school at Lismore. The few prominent names mentioned here represent but a small part of the work for Christianity performed in Europe by Irish zeal. Most of it was done by unknown monks in the many monasteries scattered over W. and central Europe. These were continually being recruited by monks from I., who for ages continued the labours of St Columbanus and St Gall. Irish influence on the Continent was the result of no transient effort, but was due to a great movement which endured for 6 cents., from the 6th to the 12th.

From the 4th to the 8th cent. the

political hist. of I. is a long story of relentless and practically uninterrupted tribal warfare. The descendants of Niall of the Nine Hostages remained Ard-ri of I. down to the beginning of the 11th cent., but were seldom powerful enough to be able to maintain peace in the country. The Church was not strong enough to perform the work of the Ard-ri, and moreover the personal character of Church gov. made the Church often a party to the quarrels of the tribes. The descendants of Niall of the Nine Hostages were divided into 2 great branches, the S. Hy Niall and the N. Hy Niall. At the beginning of the 6th cent. the Scots from Dalriada (q.v.) made their settlements in Argyllshire, and ultimately, after strenuous struggles, obtained the crown of a more or less united Scotland (*see SCOTLAND, History*). About the middle of the same cent. Tara ceased to be the residence of the Ard-ri, many legends being connected with the desertion of this centre. The records tell us only of constant wars, constant successions, and short reigns. The country was in a state of anarchy. One event alone needs to be mentioned, the attempt to rule Dalriada (Argyllshire) as a subject kingdom of the Ard-ri of I.; this attempt, however, was given up. The position of the Ard-ri was unenviable. He could command no real allegiance save that of his own immediate tribe. The army of I. consisted of the tribes commanded by their own chiefs. The chiefs owned allegiance to the Ard-ri, but allegiance of such a shadowy type that it counted for nothing. Such was the state of I. when the Vikings began a series of raids which developed into a settlement.

The first invasion of the Norsemen occurred towards the end of the 8th cent. The Norwegians were the first to come, and, aided later by the Danes, they made settlements on the E. coast. Irish writers distinguish between the natives of the 2 countries: the earlier, who came from Norway, are called Fionn-gaill ('White Foreigners') and 'Lochlanns'; the Dub-gaill ('Black Strangers') or 'Danars' came later from Denmark. The distinction between them is, however, not clearly marked and they are often confused. In popular language the invaders are collectively known as the Danes, while Eng. writers make reference to them as the Norse, or Vikings, or Ostmen. The domination of I. by the invaders for over a cent. was not altogether a misfortune, since it brought that country into closer contact with the countries of the Continent and with W. civilisation. Many of the Irish tribes fought in the armies of the Danes who invaded England. Foreign trade, especially with Scandinavia, flourished. After the middle of the 10th cent. there rose to fame in I. the great Brian Boromhe (q.v.), a Dalcais prince who defeated the Danes and forced them into the position of a subject race. After bitter struggles with the reigning dynasty Brian managed in 1002 to become Ard-ri himself, and during the 12 remaining

years of his life he ruled a peaceful and prosperous I. He strengthened justice, he made good laws, and he built schools. But he had still to face the hostility of the Danes and the jealousies of the Irish chieftains. In 1014 was fought the famous battle of Clontarf, which again broke the power of the Danes, but in which Brian himself was killed. His death was a serious blow to monarchy in I., and led



National Museum, Dublin

#### THE LISMORE CROSIER

An outstanding example of medieval Irish art believed to date from the twelfth century. The staff is of yew, and the crook is of bronze, with bosses of coloured enamel. Lismore was the site of a monastery founded by St Carthach in 633.

in the cent. or more following his death to the weakening of the central power and internecine strife. The hist. of I. from the battle of Clontarf to the Anglo-Norman invasion is a record of continual strife between the O'Briens of Munster, the O'Neills of Ulster, and the O'Connors of Connaught for the Ard-riship of I. Relations with England during this period were not intimate, but were nevertheless usually fairly cordial. The disorderly condition into which the Church in I. had fallen was to a large extent remedied at the synod of Kells in 1152, which estab. 4 archbishoprics (one of them in Dublin, which as a Danish bishopric had been

subject to Canterbury), and which did much to abolish the anarchic state of Church gov. The Church had remained, however, sufficiently strong to produce numbers of devoted clerics, aware of the need for reform. Most conspicuous among them was St Malachy (q.v.), abbot of the monastery of Bangor. Having partially restored that famous school, he was made Bishop of Connor, and by much toil revived religion there. He set himself the task of carrying out 2 reforms in particular: the first of these was the organisation of definite dioceses. This work of reform and organisation, begun 40 years previously by Gilbert, Bishop of the Norse of Limerick, and Celsus, Bishop of Armagh, and carried on by Malachy, was completed at the synod of Kells. A National Church arose, and the unity of the Church in I. was clearly estab. under a recognised primacy but with full recognition too for the various constituent elements. The other great reform to which Malachy devoted himself was the revival of the monasteries. Most of the early monastic institutions in I. were independent bodies, the Columban monasteries being the sole instance of an affiliated Order. The strict discipline of these rules had been relaxed and Malachy resolved to restore it. The Canons Regular and the Cistercians, who practised the severe discipline estab. by the Irish missionaries in Europe, were employed by Malachy to restore the old monastic spirit in I., and for that purpose he brought communities from the Continent and sent Irish students to be trained in European monasteries. The Irish had, between the 4th and 12th cents., advanced but little so far as their social conditions were concerned. A species of feudalism had grown up, but the tribal system and the Brehon laws remained in existence. When Henry II succeeded to the Eng. throne he had already planned the conquest of I. Pope Adrian IV (q.v.) had given his sanction to the idea, and had desired the conquest as a means of bringing the Irish Church into closer contact with Rome. In 1166 Dermot Macmurragh, exiled from I. because of his tyranny, and also because of the hatred he had roused by carrying off the wife of the chieftain of Breffni, arrived in Aquitaine and asked for help from Henry II. The king was at that time too much occupied with other affairs to attend to Irish matters himself, but he gave Dermot permission to raise forces from amongst his Lords of the Marches. Dermot applied to Richard de Clare, Earl of Pembroke (usually called Strongbow, q.v.), and, by promising him the hand of his daughter and the ultimate possession of his kingdom, induced that earl, whose fortunes were not at their highest level, to help him. Strongbow did not cross over until 1170, but Fitz-Stephen and Fitz-Maurice crossed with a small company of men in 1169, and began the Anglo-Norman conquest of I.

It is impossible to follow here the fortunes of the first adventurers: suffice it to say that by their superior skill and their

united efforts they restored Dermot and paved the way for the overlordship of Henry II which that king estab. when he visited I. in 1172. The kings of I. were forced to acknowledge Henry as their overlord, the country was placed under the administration of a Norman governor, the barons who had fought in I. were granted Irish lands, and the Irish Church was brought by the synod of Cashel into complete union with the Church of Rome. The Irish were, however, allowed to retain their old Brehon laws, and the Anglo-Normans were left to maintain themselves in their dominions as best they could. The hist. of I. for some time after this date is the record of continuous strife between the Norman barons attempting to extend their power and the Irish attempting to retain their customs, laws, and civilisation. The conquered ter. was known as the Pale, and the whole of I. was ruled nominally by a Norman governor. John was made Lord of I. in 1185, but soon made himself hated, as he was later in England. The real rulers of the land were the de Lacys, who had been granted huge ters. by Henry II, and who, by sub-infeudating their land, introduced those great Norman families who have played such an important part in the hist. of I. During John's reign, however, Eng. power increased, as it did during the reign of Henry III. The reign of Edward I saw the power of the colonists still on the increase to such an extent that they were able to help Edward in his wars with Scotland; but although in Connaught and in Ulster the power of the English was still increasing, nevertheless the Celtic tribes were not yet utterly beaten. During the reign of Edward II Edward Bruce tried to conquer the is. and to drive the English out, but after sev. futile victories he was finally overcome and slain at the battle of Dundalk. The reign of Edward III witnessed the passing of the Statute of Kilkenny (1367), which forbade the intermarriage of the Anglo-Normans and the Irish; it also saw the creation of the earldoms of Desmond and Ormonde, added to that of Kildare. Richard II led 2 expeditions to I., with both of which he did little good; the Celtic reaction was strong and was strengthened by the baronage. One of the main results of Richard's second Irish expedition was that it allowed time for the house of Lancaster to usurp his throne. The period of Lancastrian rule was one of extreme misery for I. Henry IV could do little, Henry V was too busily occupied elsewhere to turn his attention to I., whilst Henry VI's regents did very little indeed. Richard of York was made governor of I. in 1449 for 10 years. He ingratiated himself with all parties and became extremely popular. Edward IV's reign was remarkable for nothing save its lawlessness and the fact that Tiptoft, Earl of Worcester, became governor of the is. and was responsible for much bloodshed. During the reign of Henry VII was passed the famous Poyning's (q.v.) law, which gave control of the Irish legislature to the

Eng. council, and was responsible for much contention at a later date. The Earl of Kildare espoused the cause of Lambert Simnel (who was crowned 'king' in Dublin) in 1487, but certain of the Irish, and in particular the tn of Waterford, were strong supporters of the Tudors. Henry VIII did not turn his attention to I. until fairly late in his reign. By this time the Anglo-Norman families were Irish in almost every respect. Most of them no longer acknowledged any law save that of the tribal system of anc I. But the king struck with a heavy hand, the power of the house of Kildare was broken, and the country was slowly recovered from the hands of the feudal lords. Henry himself adopted the title of King of I., and the Irish were gradually brought to look to the power of the crown for the redress of their grievances. The native chieftains were also granted titles from the crown and were encouraged to come to court as often as possible. The reign of Edward VI saw the beginning of the attempt to introduce Protestantism into I. The attempt was a failure, although it was supported by those in authority. The sincere Catholicism of the people was only too evident, and Mary had no difficulty in restoring the old faith; but the monastic lands which had been seized were not given back, and in fact Protestants from England found in Dublin during Mary's short reign a place of refuge from persecution.

We may revert here to a consideration of the hist. of the progress of the Reformation in I. in the Tudor period. Henry VIII's doctrine of his eccles. supremacy received little support in I., where there was no desire for religious innovations. In 1535 Henry appointed a commission to initiate the enforcement in I. of the Reformation. At its head was George Browne, an Eng. Augustinian friar, who had been chosen Archbishop of Dublin by the king and consecrated for that office by Cranmer, Archbishop of Canterbury, without any authority from the Pope. But the new archbishop secured only the support of the Bishop of Meath, and he quarrelled violently with the deputy viceroy, Lord Leonard Grey. In 1536 a parliament, assembled in Dublin, was required to pass 'the Act of the Supreme Head' providing severe penalties for those who obstinately refused to acknowledge the king to be head of the whole Church in I. By another Act, 'first fruits' of eccles. offices were to be paid, not to the Pope, but to the king. Henry's next step was to undertake the dissolution of the Irish monasteries and convents. There were in I. about 600 religious houses, including 70 convents. By the end of 1553 almost all those in Leinster, most of those in Munster, and some in Connaught had been suppressed. In Ulster and in remote parts of Connaught and Munster, however, monasteries continued to exist till the early 17th cent. The pretext advanced for the suppression was that they were the abodes of idolatry and superstition, whereas, in fact, the religious

houses of I. had performed a number of indispensable social services for the people, including education and hospitals. The dissolution was accompanied, in sev. cases, by violence and bloodshed, and many religious suffered imprisonment and even death for their refusal to adhere to the doctrine of the royal supremacy. In 1539 another commission was set up to find and destroy relics and to transfer images and valuable ornaments, such as golden chalices, to the king's use. Browne then tried to evangelise the more distant parts of his archdiocese, and in the result the Irish privy council asserted that 8 bishops and 2 archbishops came before them in Clonmel to take the required oath. But of bishops of papal creation only 5 'conformed,' and these were deposed for heresy by the Pope. Of the lower clergy few within the Pale took the supremacy oath, and scarcely any outside it. Outwardly I. might conform to the reformed doctrines, but at this period it was the practice in the country to enter into engagements without any intention of carrying them out.

When Mary *d.*, Elizabeth I, a champion of the Reformation, but one devoid of religious zeal, intended that the State Church of England should exercise sway over I. too. In 1560 she directed the Irish Parliament to pass 2 important Acts: the Act of Supremacy, declaring her supreme governor, both in eccles. and spiritual and in temporal matters, and denying papal jurisdiction; and the Act of Uniformity requiring the use of a Reformed Prayer Book at public worship. But this religious legislation was far from being strictly enforced anywhere in I., and in a great part of the country it was impossible to enforce it. Even where the authority of the Eng. gov. was effective the queen was careful not to provoke hostility or even rebellion by too great severity. But this moderation was not due either to humanity or to weakness on her part. Throughout her reign she directed her Irish policy to the political subjugation of I. and its reduction to uniformity with England not only in religion, but also in speech and social customs. Resistance to this policy led to persecution of the Catholics. The realisation, at length, in I. that the Reformed doctrines were closely linked with the imposition of foreign rule proved, indeed, to be a cohesive influence among the people, who hitherto had fought and died mainly in the interests of clan conflict. But now, under the goad of foreign rule, a broader patriotism grew up through the stimulus of the threat to Catholicism. Elizabeth found, therefore, for her religious policy in I. many zealous adversaries, while her supporters numbered only the few whose private interests, rather than zeal for the policy, had induced them to 'conform.' The bishops and priests who refused the Oath of Supremacy were generally deprived of their sees and livings and superseded by Englishmen or Irishmen of more pliant dispositions. But the wretched stipends

of the sees and livings were not likely to attract men who could hope for eccles. preferment in their own country. In consequence the churches were neglected and suffered to fall into ruins, and in many places no parochial duty was done. In the parts of the country, however, where the authority of the Eng. gov. was as yet only nominal, conditions were better, especially before the Desmond insurrection had devastated the S. and the O'Neill was ruined the prosperity of Ulster.

With the accession of Queen Elizabeth the State Church was restored in I., but the most noteworthy events in Irish hist. during this period are the O'Neill and later the Geraldine rebellions. Shane O'Neill had been elected chieftain by his tribe and claimed the earldom of Tyrone, which had passed to a bastard brother, Brian O'Neill. The Eng. supported the claim of Brian, but Shane was able to keep up a continual contest with the crown until finally, in 1567, he was killed.

The crushing of the Shane O'Neill rebellion was followed in I. by a great religious revival. The counter Reformation, which was doing so much to restore Catholicism on the Continent, worked with tremendous rapidity in I., influenced and helped to a very great extent by Jesuit priests. The immediate outcome of this religious revival was the Geraldine rebellions. The second of these, led by the Earl of Desmond, was only put down after 4 years' continual struggle. The Irish were helped during this period (1579-83) by the Spaniards and the Italians, and were crushed finally with great cruelty. The rebellion had been practically confined to Munster, which was finally subdued by huge confiscations and Eng. settlements; amongst the settlers were the poet Spenser and the adventurer Raleigh. The final rebellion during Queen Elizabeth's reign broke out in 1595 under O'Neill, Earl of Tyrone. Essex, sent to quell it, made terms with its leader and returned home; but Mountjoy, by means of a series of fortresses from which he ravaged and laid waste the land, finally conquered it (1603). Tyrone admitted defeat, and was allowed to keep his lands and title. The wars in I. had of a necessity been barbarous ones, both because the English unjustifiably regarded the Irish as savages and also because I. was struggling for all that England held in greatest hate—Catholicism and the friendship of Spain. The atrocities of the time, equally ferocious on both sides, cannot be palliated, but can be understood against this conflict. The system of plantations developed during the reign of James I. The possessions of the earls of Tyrone and Tyrconnel were confiscated, and the lands of Ulster were apportioned to Scottish and Eng. settlers (mainly Presbyterians) and to other grantees, including London companies and Trinity College, Dublin. The administration of Strafford (q.v.) is the most important event of the early part of Charles I's reign. He promoted industry, law, and order; he restored the

country to something approaching prosperity, but his order was the order of repression, his discipline the discipline of the iron hand. His worst and most unjust work was the attempt to 'settle' Connaught, but before he could carry out that work he was recalled to help Charles in England (1640). In 1641 a great rebellion broke out in I., supported both by the 'old Irish' and by the Norman-Irish. It was inspired by hatred of the rule of Strafford and by the fear of what would happen under Puritan rule. Undoubtedly thousands of Protestants perished, although in a number of cases the figures have been grossly exaggerated. The situation was complicated by the outbreak of civil war in England, and the Irish sent some help to the king, who was continually intriguing with them. In 1649 the execution of the king released the parl. troops for service in I., where the young king, Charles II, had been immediately recognised. The methods of Cromwell and Ireton were thorough, and the Irish were crushed altogether. The garrisons of Wexford and Drogheda were massacred, and every priest that the Puritans found was indiscriminately slaughtered. The 'old Irish' and Norman-Irish landowners who had opposed the Commonwealth were banished W. of the Shannon 'to Hell or Connaught,' and their estates were divided up among the Cromwellian soldiers and those (many of them London merchants) who had 'adventured' money to finance the campaign. The only merits of Cromwellian rule were the restoration of order and the prosperity which followed a peace of desolation. The Catholic religion was, however, sternly repressed. After the Restoration only a minority of the old families recovered their estates, but the Rom. Catholic religion was given a certain degree of toleration, and for the greater part of the reign Ormonde ruled I. for the Eng. king. The country was on the whole peaceful, but the trade restrictions imposed were rapidly alienating the Irish people still further, and were the cause of considerable trouble at a later period.

The revolution of 1688 was the immediate sign for the outbreak of hostilities between the Catholics and Protestants of the N. of I. Londonderry and Enniskillen were besieged, and the Protestants found themselves hard set to hold their own. Londonderry remained uncaptured, whilst the besieged in Enniskillen broke out and won a victory at Newtown Butler. The siege of Londonderry is memorable for the fortitude of its inhab., who held out for nearly 4 months, repelling every attack and suffering extreme privation and, at the end, stark famine (having eaten all the horses, cats, dogs, rats, mice, tallow and starch in the tn), until some Eng. ships broke through the obstructions of the riv. and so raised the siege and saved the tn. In 1690 was fought the battle of the Boyne (q.v.), after which James II left the country and returned to France. William III also returned to England,

and the Irish rebellion was crushed by John Churchill, Duke of Marlborough, assisted by Ginkell, one of Wm's Dutch generals. Cork and Kinsale fell. The Irish were defeated at Aughrim, and finally Sarsfield (q.v.), after a magnificent defence, surrendered Limerick, and returned to France with his followers to found the famous Irish brigades. The capitulation of Limerick had, in addition to allowing the Irish freedom to enlist in the service of France, also promised toleration for the Catholics to the degree allowed during the reign of Charles II.

were allowed them. These reforms were the immediate outcome of the Amer. War of Independence. I. had to be better treated, or there was the possibility of her also breaking away. The prin. result of this war, however, was the granting of an independent parliament. The Brit. troops had perforce been withdrawn from I. for service in America; Fr. invasion seemed imminent. The Irish, Protestant and Catholic alike, formed a volunteer force to resist invasion. Then gradually they discovered their own power; led by Henry Grattan (q.v.), and practically



*British Railways*

THE GIANT'S CAUSEWAY, CO. ANTRIM

But the Penal Code, passed by a Protestant parliament, did not recognise this latter clause. The Code was a series of vindictive anti-Catholic laws, which denied to the Catholics any rights of citizenship and any ownership of property. The gov. of I. passed into the hands of a Protestant oligarchy. Many of the great landowners were never in the country, and their representatives treated the Irish peasantry with the utmost cruelty. Parliament was in the hands of the great Protestant families, and the Church under the control of absentee and often irreligious bishops. The Irish people were downtrodden, their trade repressed, and their land taken from them. Thousands of them emigrated, and the flower of the Irish nation served the enemies of England, since England refused to use their services. Towards the end of the cent., however, Catholic repression was lightened, and sev. concessions in the matter of ownership of land

under the threat of rebellion, they obtained the repeal of Poyning's law after trade restrictions had been withdrawn (1782).

The next important event was the French Revolution, which Catholic and Protestant alike hailed as the greatest blessing of the age. The United Irishmen (q.v.) were formed, Fitz-William promised that which he could not fulfil—Catholic emancipation (q.v.)—and finally the state of I. became anarchic. The United Irishmen were sternly repressed and disarmed. Ulster underwent a brutal persecution at the hands of an armed force, and was finally disarmed. In 1796 the Fr. invasion under Hoche (q.v.) had failed at Bantry Bay. In 1798 the Irish rebellion broke out. To a great extent it was a national rising. The leaders held out for Catholic emancipation and parl. reform, and the peasantry were fighting for separation from Great Britain. The battles of New Ross and Vinegar Hill



were the only two engagements of importance, and both were defeats for the rebels. A Fr. landing was a failure, since it came too late, and Pitt saw that only union could end such anarchy. But union was distasteful and disliked. It was only at enormous expense and after much bribery by means of honours that it was brought about. Grattan, ever a patriot, spoke strongly against it. In 1800, however, the Act of Union was passed, and in 1801 it became law. The Irish were to be represented in parliament by 28 Irish peers and 4 bishops, elected for life by the whole of the Irish peerage. One hundred members were to represent I. in the House of Commons. I. was to pay a certain amount to the Brit. exchequer, was to be given absolute free trade with Great Britain, and was to keep her judicial and executive systems, Pitt intended the Act



E.N.A.

## PEAT CUTTING IN CONNEMARA

of Union to be accompanied by a measure of Catholic emancipation, but the king (George III) pleaded his coronation oath and refused to hear of it. Finally, rather than break a pledge, understood if not definitely given, Pitt resigned (1801). Rom. Catholics were unable to sit in the House of Commons until 1829, when the Rom. Catholic Emancipation Act was passed permitting them to do so. O'Connell (q.v.) was the great Irish leader of this time. In 1846 the potato crop failed, and famine made conditions terrible in I. About this time I. also began to feel Amer. competition in the corn market. Great Britain adopted Free Trade, and I., with the loss of protection for her wheat, soon found it impossible to compete with America. Measures were introduced attempting to alleviate the suffering of the small-holders, who, in many cases, were evicted by the impoverished land owners, and thousands of Irishmen emigrated to the U.S.A. and Canada. From 1864 to 1914 I. may be seen to change from a land of tillage to one of pasturage. The political unrest was aggravated during these years by the land question. Gladstone brought forward in Parliament 2 Home Rule (q.v.) Bills, one in 1886 and the other in 1893, but both were rejected. The work of the Irish leader Parnell (q.v.) in consolidating the Irish Home Rule

party deserves notice during this period. Again, sev. years later, the Liberal party under Asquith introduced a Bill for Home Rule for I., and in 1914 this Bill received the Royal Assent. But owing to the First World War the operation of the Act was suspended. During the First World War many Irishmen volunteered and fought for Great Britain, and John Redmond (q.v.), the leader of the Irish parl. party, used all his influence to assist the Brit. cause. But trouble between the 2 countries was still brewing. In 1916 there was a rising in Dublin, and after the war and the death of John Redmond matters grew worse. The political leadership of the country had slipped from the hands of the Parliamentary party, and Sinn Féin (q.v.) was becoming the dominant force in I. Irish representatives returned in the general election of Dec. 1918 met in an independent parliament (*Dail Eireann*) in Dublin, and affirmed the independence of the country. Guerrilla fighting began in I. between the forces of the Crown and the supporters of Sinn Féin, and was ended by a truce in 1921, in which year a parliament for the 6 N.E. cos. of I. was estab. by the N. Unionists. In consequence of a treaty signed on 6 Dec. 1921, dominion status was accepted for the other 26 cos., and the Irish Free State (*Saorstát Eireann*) came into being. For subsequent developments in I. see GREAT BRITAIN; IRELAND; NORTHERN; IRELAND, REPUBLIC OF.

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**Art.** The introduction of Christianity into I. gave rise to a splendid development of decorative and ornamental art, in which pre-Christian, Celtic, and Byzantine elements of style are all combined in rich and distinctive fashion. The influence of the Irish artists extended to Scotland and Northumbria. *The Book of Kells* (q.v.) and the *Lindisfarne Gospels* (q.v.) are masterpieces of this school of illumination (7th cent.). Stone crosses (see *Cross*) and beautiful metalwork are other aspects of Irish Celtic art, and the National Museum, Dublin, has many fine examples, including the Tara Brooch, the shrine and bell of St Patrick, the Cross of Cong, the Lismore Crozier, the Ardagh Chalice (see also **CELTIC ORNAMENT and SCOTLAND (ART)**). In modern times I. has contributed a number of distinguished painters to the hist. of Brit. art. They include James Barry (1741-1806) (q.v.), Daniel Maclise (1806-70) (q.v.), Wm Mulready (1786-1863) (q.v.), Sir Martin Archer Shee (1769-1850), Sir Wm Orpen (1878-1931) (q.v.), and Sir John Lavery (1857-1941) (q.v.), while Jack Butler Yeats (q.v.), brother of the poet (d. 1957), has admirably reflected Irish life and feeling. Louis le Brocqy is notable among a number of living painters in the Rep. of I. The Royal Hibernian Academy, Dublin, performs the same national function as the London Royal Academy.

**Ireland, Church of**, was founded, according to tradition, by St Patrick, who has always been regarded as the patron saint of the country, in the 5th cent. In the 7th and 8th cents. the Irish Church was one of the most flourishing in Christendom (see **IRELAND, History and ROMAN CATHOLIC CHURCH**). Despite the outward continuity of the present C. of I. with the pre-Reformation Church, it has for cents. been the Church of only a section of the people, of whom by far the larger portion remained under papal jurisdiction. The first convocation of the Irish clergy was held in the reign of James I, the Irish articles being drawn up in 1615. These were accepted by the Irish Church in 1634. Their distinctly Calvinistic tone is indicative of the way in which the C. of I. has always inclined more in the direction of the advanced reformers than has the Church of England. During the 17th cent. its most important prelates were John Bramhall, Archbishop of Armagh, Jeremy Taylor, Bishop of Down, and Wm King, Bishop of Derry. The Act of Union of 1800 linked the Churches of England and I. into the 'United Church of England and I.', but the reformed doctrines made no progress. In 1833 the Church Temporalities Act abolished 2 of the 4 Irish archbishoprics and 8 of the 18 bishoprics. Finally, in 1869, a Bill for the disestab. of the Irish Church was passed on the

introduction of Mr Gladstone. Before the Act came into operation (1871) a synod of the Irish Church was held which declared its adherence to the anct constitutions of the Church, and since then no doctrinal or disciplinary changes of importance have been made. The C. of I. now has about 1000 clergy, and nearly 500,000 adherents. See R. Mant, *History of the Church of Ireland*, 1840; Lee, *Irish Episcopal Succession*; T. Olden, *Church of Ireland*, 1892; L. Gougaud, *Christianity in Celtic Lands*, 1932; W. Phillips, *Church of Ireland from Earliest Times*, 1933; M. V. Ronan, *Reform in Ireland*, 1936; T. J. Johnston, J. L. Robinson, and R. W. Jackson, *A History of the Church of Ireland*, 1953.

**Ireland, National University of**, estab. at Dublin under the Irish Universities Act, 1908, and came into full working order on the dissolution of the Royal Univ. of I. on 31 Oct. 1909. It is a teaching univ. and comprises 3 constituent colleges and 1 recognised college. The constituent colleges are Univ. College, Dublin, which had its origin in the Catholic Univ. of I., founded by Cardinal (then Dr) Newman in 1851 (commenced work in 1854); Univ. College, Cork, founded in 1845 as Queen's College, Cork, and opened to students in 1849 (its name being changed in 1908), with a special faculty devoted to dairy science; and Univ. College, Galway, founded in 1845 as Queen's College, Galway, and opened to students in 1849 (its name being changed in 1908), a centre of Gaelic culture, courses being available through the medium of the Irish language in the faculties of arts, science, and commerce. St Patrick's College, Maynooth, founded in 1795, is a recognised college of N. U. of I. (recognition being granted by the Senate in 1910), and is the chief centre in I. for the training of the Catholic diocesan clergy.

Courses for degrees in the following faculties are provided in the constituent colleges: arts, philosophy and sociology, Celtic studies, science, law, medicine, engineering, architecture, commerce, general agriculture (Dublin only), dairy science (Cork only), veterinary medicine (Dublin only). The courses in the faculties of arts, philosophy and sociology, Celtic studies and science, at St Patrick's College, Maynooth, are recognised by the univ. Apart from the teaching staffs of the colleges, the univ. has no teaching staff.

**Ireland, Northern**, political div. of the U.K. of Great Britain and N. I., comprising the 6 NE. cos. of I.: Antrim, Armagh, Down, Fermanagh, Londonderry, and Tyrone (qq.v.), including the co. bors. of Belfast and Londonderry. It is sometimes referred to as 'Ulster' (q.v.), although 3 cos. of the anct prov. of Ulster belong to the Rep. of I. (see **CAYAN; DONEGAL; and MONAGHAN**). N. I. is bounded on the N. by the Atlantic, on the NE. and E. by the N. Channel and the Irish Sea, and on the S. and W. by the Rep. of I. Area 5238 sq. m.; pop. (1956) 1,396,600. Cap. Belfast (q.v.).

TABLE I

Counties	Area in Statute Acres	Population
Antrim (Belfast)	702,948	237,400
Armagh (Armagh)	312,766	114,700
Belfast Co. Bor.	15,357	453,900
Down (Downpatrick)	609,035	244,500
Fermanagh (Enniskillen)	417,912	52,500
Londonderry (Londonderry)	512,576	107,600
Londonderry Co. Bor.	2,200	51,500
Tyrone (Omagh)	779,545	131,700
Total for N. Ireland	3,352,339	1,393,800

*Geography.* The coastline of N. I. is rocky and wild on the N., and has sev. deep indentations: Lough Foyle in the N., Belfast Lough in the E., and Strangford and Carlingford Loughs in the SE. The surface in general consists of volcanic plateau, and is drained by the R.s Bann, Blackwater, Foyle, Lagan, Main, and Mourne. The fertile plain, in which lies Lough Neagh (q.v.), the largest lake in the Brit. Isles, is bounded on the NE. by the hills of Antrim, and on the NW. by the Sperrin hills. In the SE. of co. Down are the Mourne Mts (q.v.), which rise to 2796 ft in Slieve Donard. Lough Erne (q.v.) bisects Co. Fermanagh NW.-SE.

*Area and Population.* The land areas (in acres) and the estimated pops. of the cos. in 1955 were as shown in Table I (assize tns given in brackets).

Vital statistics for the year 1955 were: marriages, 9513; births, 28,965; deaths, 15,407. The number of divorces, separations, and marriage nullities in 1955 was 154.

*Constitution and government.* Under the Government of Ireland Act, 1920, as amended by the Irish Free State (Consequential Provisions) Act, 1922, a separate gov. and a separate parliament were estab. for N. I. (see IRELAND, *History and IRELAND, REPUBLIC OF*). The partition of I. is a dominant political grievance in the Rep. of I. and has led to incidents of violence (renewed in recent years) which, however, have been condemned by the gov. in Dublin as well as by the gov. in Belfast. The constitutional position of N. I. is referred to in the Ireland Act, 1949 (of the Parliament of the U.K.), which says: 'It is hereby declared that Northern Ireland remains part of His Majesty's dominions and of the United Kingdom, and it is hereby affirmed that in no event will Northern Ireland or any part thereof cease to be part of His Majesty's dominions and of the United Kingdom without the consent of the Parliament of Northern Ireland.'

The Parliament of N. I. consists of a Senate of 24 elected senators and 2 *ex officio* senators, and a House of Commons of 52 elected members. Senators hold office for a fixed term and are elected by members of the House of Commons on a system of proportional representation.

The House of Commons lasts for 5 years, unless dissolved sooner; it is elected by universal, adult, direct suffrage (according to a system of proportional representation until 1929). The Parliament has power to legislate for N. I., except in regard to: (1) matters of imperial concern (the Crown; making of peace or war; military, naval, and air forces; treaties; titles of honour; treason; naturalisation; domicile; external trade; submarine cables; wireless; telegraphy; aerial navigation; light-houses; coinage; trade marks); and (2) certain matters 'reserved' to the Parliament of the U.K. (postal services; post office and trustee savings banks; designs for stamps). The executive power is vested in a governor, who acts on behalf of the queen. He holds office for 6 years, and is advised by ministers responsible to Parliament. In addition to its representation in its own Parliament, N. I. also returns 12 members to the Parliament of the U.K. The first sitting of the N. I. Parliament was in June 1921. At the general election of March 1958 there were returned: 37 Unionists, 7 Nationalists, 4 Labour, 1 Independent Labour, 1 Republican Labour, 1 Independent Nationalist, and 1 Independent. Labour is the official opposition.

*Agriculture.* Agriculture is of primary importance. Most farm holdings are small. The acreage devoted to the cultivation of the prin. crops in 1956 was: oats, 256,300; barley, 5030; dredge corn, 3860; wheat, 1320; rye, beans, peas, 690; potatoes, 116,320; turnips, 9990; cabbage, 3920; other crops, 6250; flax, 8430; fruit, 8860; rotation and permanent grass, 1,778,090. The numbers of livestock in 1956 were: cattle, 919,500; sheep, 889,000; pigs, 661,000; poultry, 11,549,500.

*Resources and industry.* The mineral resources of N. I. are small. Some 2500 persons are employed in mines and quarries. The chief industries are linen manuf. and shipbuilding. The value of linen goods and yarn (mostly originating in N. I.) exported from the U.K. in the year ending 30 June 1956 was £20,000,000. The N. I. linen industry exported other goods to the value of £3,250,000. Normally the textile industry employs about 100,000 persons. Some 52,000 workers are employed in engineering and ship-

building. The output capacity of the Belfast shipyards exceeds 200,000 tons per year. The aircraft industry employs about 8000 workers, and other important engineering manufs. are agric. machinery, tabulating machines, radio and gramophone equipment, and electronic equipment. The gov. encourages the expansion of industry by capital grants and the provision of gov.-built factories at low rents or on repayment terms. Total sales of electricity in 1955 amounted to 834,500,000 units. The planned capacity of generating plant in 1961-2 is 641,000 kw.



*Irish Linen Guild*

#### FLAX HARVESTING IN NORTHERN IRELAND

The flax is put into the retting dam where it will steep for about ten days.

**Commerce.** The value of imports in 1955 was £295,000,000, and of exports £267,000,000. 76.4 per cent (by value) of the total imports came from (or via) Great Britain, and 6.3 per cent from the Rep. of I. Of exports 95 per cent went to (or via) Great Britain, and 3 per cent to the Rep. of I.

**Religion.** The membership of religious bodies as recorded in the census of 1951 was: Rom. Catholics, 471,460; Presbyterians, 410,215; Church of I., 353,245; Methodists, 66,639. The Rom. Catholic Church has 1 archbishopric (Armagh, primacy of all I.) and 4 bishoprics. The Church of I., also, has 1 archbishopric (Armagh, primacy of all I.) and 4 bishoprics.

**Education.** In 1955-6 there were 1601 primary schools, with 205,712 pupils and 6240 teachers; 81 grammar schools, with 31,815 pupils and 1649 full-time teachers; 31 secondary intermediate schools, with 12,961 pupils and 522 full-time teachers; 31 technical intermediate schools, with 5341 pupils. There were also 192 centres for further education, with 3129 full-time and 30,302 part-time pupils. The Queen's Univ. (q.v.) of Belfast had 2630 students. Magee Univ. College, Londonderry (a recognised college of the Queen's Univ. since 1951), had 154 students.

**Health and social services.** The Health Services Act (Northern Ireland), 1948, provides for a comprehensive health service similar to that in operation in Great Britain. The social-security schemes in N. I. differ from those in Great Britain only in minor details.

**Justice.** N. I. has a Court of Appeal (from which an appeal lies to the House of Lords), a High Court of Justice, and a Court of Criminal Appeal. County courts have civil (up to £100) and criminal jurisdiction, and act as appellate courts from the decisions of resident magistrates. In 1935 the judicial functions of the justices of the peace were vested in permanent judicial officers called resident magistrates; justices of the peace retain their administrative functions and have a jurisdiction (out of Petty Sessions) in cases of drunkenness.

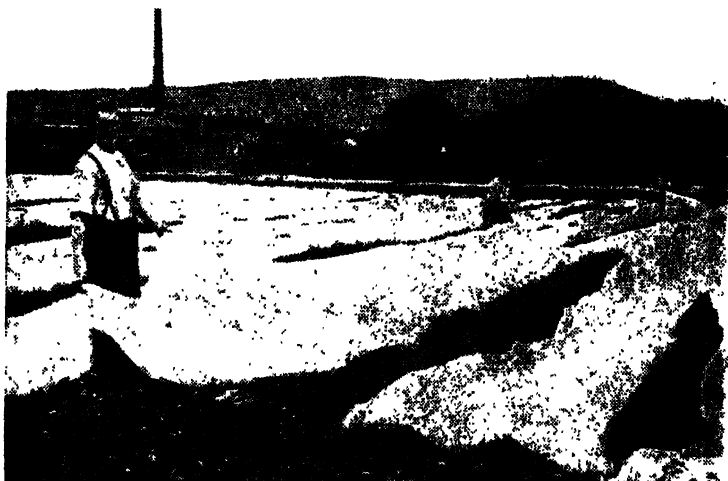
**Communications.** Roads and streets are divided into 5 classes: trunk, 348 m.; class 1, 960 m.; class 2, 1747 m.; class 3, 2761 m.; unclassified, 7814 m. Public transport services are provided by the Ulster Transport Authority, the Great N. Railway Board (which operates also in the Rep.), and the Belfast Corporation. In 1955 there were 83,542 private cars, 21,001 motor bicycles, 25,146 goods vehicles, and 22,867 agric. engines. Passenger and freight services operate between Belfast and Heysham, Liverpool, Glasgow, and Ardrossan; between Larne and Stranraer; and between Londonderry and Glasgow. Vehicle ferries operate between Larne and Preston, and Belfast and Preston. Brit. European Airways Corporation maintains services between Belfast (Nutt's Corner) and London, Liverpool, Manchester, Birmingham, Glasgow, and the Isle of Man.

**Finance.** The bulk of the taxation of N. I. is imposed and collected by the U.K. gov., which makes certain deductions and remits the balance (the Residuary Share of Reserved Taxes) to the N. I. Exchequer. The allocation of this balance is determined by the Joint Exchequer Board, which consists of a chairman appointed by the queen, and one representative each of the U.K. Treasury and the N. I. Ministry of Finance. The N. I. Parliament has limited powers of taxation, and also raises money from time to time for capital purposes by means of stock and savings certificates. The public estimates for 1956-7 were: public income, £74,262,000; expenditure, £74,207,000; contribution from U.K., £12,500,000.

*History.* N. I. is an integral part of the U.K. (q.v.), and to a large extent its hist. since 1920, when the gov. of N. I. was estab., is the hist. of Great Britain (q.v.). A number of distinctive features are, however, worthy of mention here.

The N. I. Parliament met for the first time in June 1921. The Unionist party (in favour of continued union with Britain, and with a strongly Protestant membership) had a large majority; it has retained a substantial majority up to the present

(1940), when he was succeeded by J. M. Andrews. Craigavon was a fervent champion of continued union with Britain, and during the early years of the Irish Free State, when civil strife spread over the border into N. I., his forceful character had an immense and steady influence on N. I. politics. In 1929 proportional representation (by which the Parliaments of 1921 and 1925 had been elected) was abolished. Various Acts of the Parliament at Westminster, in 1928, 1932,



*Irish Linen Guild*

#### BLEACHING IRISH LINEN

day (1958). The Unionist party has all along included people bound together primarily by their view on the importance of the Brit. connection, but often differing in their views on other major issues. In general Unionist domestic policy can be approximated to progressive Eng. conservatism, though there are differences. In recent years the growth of a N. I. Labour party, also pledged to retain the Brit. link but far more radical in its other views than the Unionists, has tended to narrow the Unionist membership slightly. In the 1958 general election the Unionists again won a large majority, but the N. I. Labour party won some seats in Belfast.

N. I.'s first premier was Sir James Craig, subsequently Viscount Craigavon (q.v.); he held office until his death

1945, and 1947, have removed some of the restrictions put on the N. I. Parliament by the original Act of 1920.

N. I. was severely hit by the depression of the 1930's, and unemployment in Ulster remained high until 1939. N. I. announced her unity with Great Britain in the Second World War on 4 Sept. 1939, and many of the leading military figures on the Brit. side (e.g. Alanbrooke, Alexander, Auchinleck, q.v.) were Ulstermen. N. I.'s agriculture and industries contributed substantially to the Brit. war effort, and for the first time for many years there was full employment. In 1943 Sir Basil Brooke became premier; he has held office ever since, being created Viscount Brookborough (q.v.) in 1952.

After the Second World War, N. I.

like the U.K., enacted legislation in the sphere of health, housing, etc., which transformed N. I. into a 'welfare state' after the Brit. pattern. During the 1950's unemployment in N. I. increased considerably, the percentage of unemployment being higher there than elsewhere in the U.K. Strenuous efforts have been made to persuade new industries to build factories in the area, Lord Chandos (q.v.) being, since 1955, chairman of the Advisory Development Council for N. I.

*Ireland, 1927*; Sir A. S. Quckett, *The Constitution of Northern Ireland, 1928-47*; C. Falls, *The Birth of Ulster, 1936*; H. Shearman, *Not an Inch: a study of Northern Ireland and Lord Craigavon, 1942*; J. M. Mosey, *Rural Life in Northern Ireland, 1947*; T. Wilson (ed.), *Ulster under Home Rule, 1955*; *Ulster Year Book* (H.M.S.O., ann.).

*Ireland, Republic of* (Irish, Poblacht na hÉireann), independent rep., comprising the whole of I. (q.v.) except for the 6 N.E. cos. (see IRELAND, NORTHERN). From



*Irish Tourist Association*

THE RIVER LEE AT CORK

Since the end of the Second World War the Irish Republican Army (q.v.) has caused a number of incidents in N. I. and there have been some fatal casualties on both sides. Except in the few known anti-partitionist areas of N. I., the effect of these raids has probably been further to harden N. I. public opinion against any agreement with the Rep. of Ireland which might involve a weakening of her ties with Britain. Ever since 1920, however, there have been close economic links between N. I. and the Free State (later the Rep.), and the two govts. have frequently co-operated on economic matters.

N. I. has welcomed royal visitors with great enthusiasm on sev. occasions; notable royal visits include those of King George VI in 1937 and 1945, and of Queen Elizabeth II in 1953.

See D. A. Chart, *History of Northern*

1922 to 1937 it was known as the Irish Free State (Irish, *Saorstát Éireann*). In the constitution of 1937 it was given the name Éire (see *Constitution and government* below). It is, also, sometimes referred to colloquially as 'Southern Ireland' (in distinction to N. I.), although in fact it includes the most northerly part of I. The Rep. of I. is bounded on the NW., W., and S. by the Atlantic, on the SE. by St George's Channel, on the E. by the Irish Sea, and on the NE. by the political div. of N. I. Area 26,600 sq. m.; pop. (1956) 2,898,264. Cap. Dublin (q.v.).

*Geography.* There are no dominating mt ranges but there are detached groups of mts; these occur for the most part in coastal regions. The highest elevation is some 3000 ft., while the average height is about 400 ft. The chief groups are the Wicklow Mts (q.v.) (Lugnaquilla, 3039

ft.); the Derryveagh Mts (q.v.) in the NW. (Errigal, 2466 ft.); the Macgillcuddy Reeks (q.v.) in the SW. (Carrantuohill, 3414 ft.); the Galtees in Tipperary and Limerick; the Knockmealdown Mts (q.v.) in Tipperary and Waterford; the Comeragh Mts (2597 ft) in Waterford; Slieve Bloom in Laois and Offaly; and the Twelve Pins (2395 ft) in Connemara. The central part of the country consists of a wide plain, about 250 ft in elevation, in which there are many morasses, the largest of these is the Bog of Allen (q.v.). These morasses are not unhealthy and produce large quantities of turf (peat), which is used for fuel. The lakes of I. are numerous. Those lying in the centre are Derravaragh, Ennelt, and Owel; Allen, Ree, and Derg (qq.v.) are connected by the R. Shannon; to the NW. are Melvin, Gill, Gara, and Conn; and on the borders of Mayo and Galway are the great loughs, Mask and Corrib. The lakes of Killybegs (q.v.) are renowned for their beautiful setting. The country is watered by many rivers. The chief of these is the Shannon (q.v.), the largest river in I., which rises in the NW. and flows in an arc to the Atlantic in the SW. The rivers flowing to the W. are for the most part short and rapid and of little use for navigation. Along the E. coast the principal rivers are the Slaney, flowing from the Wicklow Mts into Wexford harbour; the Avoca (q.v.); the Liffey (q.v.); and the Boyne (q.v.). The SE. dist. is drained by the Nore, Barrow, and Suir (q.v.), which unite in Waterford harbour. Other important rivers of the S. coast are the Blackwater, the Lee, and the Bandon (qq.v.). The coastline of the N., W., and S. is very much broken up with inlets, loughs, and rivers. The chief inlets of the NW. are the bays of Donegal and Sligo. From Malin Head (the most northerly point of I.) in Donegal, westwards and southwards, the coast is fringed with many small is.; from N. to S. are Tory Is., Aran Is., the Inishkea Is., Achill Is., the Aran Is., and Valentia Is. Along the W. coast mts border closely on the sea, giving a rugged and wild appearance; the largest inlets in the W. are Clew Bay, Killary Harbour, Killybegs Bay, Galway Bay, the mouth of the R. Shannon, Dingle Bay, the mouth of the Kenmare R., and Bantry Bay. The S. coast, not so much fretted as the N. and W., contains the fine harbours of Cork and Waterford. The E. coast is still more uniform in character, but contains the inlets of Wexford harbour, Dublin Bay, and Dundalk Bay.

**Climate.** The climate of the Rep. of I. resembles that of Great Britain, but is more equable. It is greatly influenced by the Gulf Stream and the SW. winds. In Great Britain the W. mts present a barrier to the SW. winds, but the Rep. of I. has no mt ridge lying N.-S. and consequently has a heavy rainfall fairly evenly distributed. This accounts for its frequently luxuriant vegetation (whence the name 'Emerald Isle'). The mean temp. in Jan. is seldom below 40°, while in July

the extreme mean temps. are 58° in the N. and 60° inland.

**Area and population** (see Table II). The total pop. shown in censuses since 1926 has been: 1926, 2,971,992; 1936, 2,968,420; 1946, 2,995,107; 1951, 2,960,593; 1956, 2,898,264. According to the preliminary report of the 1956 census, the number of births in the intercensal period 1951-6 exceeded the number of deaths by 134,623, whereas the total pop. declined by 65,771. The net emigration from the Rep. of I. during the period was thus 200,394. The cos. with the greatest rates of net emigration were (in order) Leitrim, Donegal, Monaghan, Mayo, Wicklow, Cavan, Sligo, Longford, Roscommon, Clare, and Tipperary.

**Constitution and government.** The independent status of I. was affirmed in Jan. 1919 by a National Parliament (*Dáil Éireann*) elected in Dec. 1918 (see *DÁIL ÉIREANN: HOME RULE: IRELAND, HISTORY: SINN Féin*). According to Brit. law, however, I. remained part of the U.K. In 1920 an Act of the U.K. Parliament provided for the setting up of separate parliaments for 'N. I.' (the 6 NE. cos.) and 'S. I.' (the remaining 26 cos.). A N. I. Parliament was duly elected on 24 May 1921, but in the rest of the country the Act remained inoperative. On 6 Dec. 1921 a treaty was signed between Great Britain and the representatives of *Dáil Éireann*, by which dominion status was accepted for I., subject to the right of N. I. to opt out. As a result the Irish Free State (*Saorstát Éireann*) came into being, its ter. being that of the 26 cos. In Dec. 1925 the boundary between the Irish Free State and N. I. was fixed by an agreement between Great Britain, the Irish Free State, and N. I. Subsequently the constitutional links between the Irish Free State and the U.K. were gradually removed by the Free State Parliament. In 1937 a new constitution gave the state a republican form of gov., but the state continued in association with the states of the Brit. Commonwealth until 18 April 1949 when, on the coming into force of the Republic of Ireland Act, 1948, this association was terminated, and the description of the state was declared to be the Rep. of I.

The constitution of 1937 is still the fundamental law of the state. It was approved by *Dáil Éireann* on 14 June 1937, and was enacted by means of a plebiscite on 1 July 1937. It gives the state the ancient name of Éire, or, in the Eng. language, I. The constitution applies in theory to the whole of I., but it provides that, pending the reintegration of the national ter., the laws enacted by the Parliament estab. by the constitution shall have the same area and extent of application as those of the Irish Free State. The state is declared to be sovereign, independent, and democratic. The right is affirmed of the Irish nation to choose its own form of gov., to determine its relations with other nations, and

TABLE II: AREA AND POPULATION

<i>Provinces, Counties, and County Boroughs</i>	<i>Area in sq. m.</i>	<i>Census Pop. April 1956</i>
<b>Prov. of Leinster:</b>		
Carlow . . . . .	340	33,854
Dublin Co. Bor. . . . .		537,878
Dún Laoghaire Bor. . . . .		47,355
Dublin Co. . . . .	355	118,257
Kildare . . . . .	654	65,927
Kilkenny . . . . .	796	64,148
Laoighis . . . . .	664	47,042
Longford . . . . .	403	32,884
Louth . . . . .	317	69,264
Meath . . . . .	903	66,689
Offaly . . . . .	771	51,917
Westmeath . . . . .	681	54,128
Wexford . . . . .	908	87,236
Wicklow . . . . .	782	59,818
<i>Leinster total</i> . . . . .	<u>7,580</u>	<u>1,336,397</u>
<b>Prov. of Munster:</b>		
Clare . . . . .	1,231	77,107
Cork Co. Bor. . . . .	4	79,945
Cork Co. . . . .	2,875	256,742
Kerry . . . . .	1,815	121,823
Limerick Co. Bor. . . . .	7	50,869
Limerick Co. . . . .	1,029	86,901
Tipperary . . . . .	1,642	129,231
Waterford Co. Bor. . . . .	3	28,858
Waterford Co. . . . .	710	45,144
<i>Munster total</i> . . . . .	<u>9,316</u>	<u>876,620</u>
<b>Prov. of Connaught:</b>		
Galway . . . . .	2,293	155,411
Leitrim . . . . .	589	37,028
Mayo . . . . .	2,084	133,036
Roscommon . . . . .	951	63,675
Sligo . . . . .	694	56,828
<i>Connaught total</i> . . . . .	<u>6,611</u>	<u>446,008</u>
<b>Prov. of Ulster:</b>		
Cavan . . . . .	730	61,723
Donegal . . . . .	1,805	122,061
Monaghan . . . . .	498	52,013
<i>Ulster (part of) total</i> . . . . .	<u>3,093</u>	<u>235,797</u>

to develop its life, political, economic, and cultural, in accordance with its own genius and traditions.

The state recognises the family as the natural, primary, and fundamental unit group of society, possessing inalienable and imprescriptible rights antecedent and superior to all positive law. Parents have an acknowledged right and duty to provide for the education of their children. The rights of citizens to personal liberty, free expression of opinion, peaceable assembly, and the formation of associations and unions are safeguarded. Freedom of conscience and freedom in the practice and profession of religion are,

subject to public order and morality, guaranteed to every citizen. No religion may be endowed or subjected to discriminatory disability. The special position of the Rom. Catholic Church, as the guardian of the faith professed by the majority of the citizens, is recognised, but other religious denominations existing at the time of the coming into operation of the constitution are also recognised. The constitution sets forth certain principles of social policy, but these are intended for the general guidance of the National Parliament, and are not cognisable by the law courts. The National Parliament is called the *Oireachtas* (q.v.),



and consists of the President of the Rep. and 2 Houses: a House of Representatives called Dáil Éireann and a Senate called Seanad Éireann. Amendments of the constitution can be effected only with the approval of the people given at a referendum. Irish is the first official language of the state, but English is recognised as a second official language.

**Local government.** There are 27 administrative cos. and 4 co. bors. The co. councils manage co. affairs generally, and have power to levy rates, borrow money, and hold property. The powers of co. bor. councils are similar. The administrative cos. include the urb. co. dists., which are urb. areas that have been constituted sanitary dists. Each such dist. has an elected council to administer the Acts relating to sanitary, housing, and urb. road services, as well as being the sole rating authority within its area. There are 56 urb. sanitary dists. as well as 28 tns whose elected in commissioners exercise certain minor functions. The local gov. bodies are administered by a system which combines elective bodies with officials called managers. The co. manager is the manager for every elective body in the co.; he is a paid official, of wide powers, whose removal from office is subject to the sanction of the central authority. Elections to local councils are held according to the principle of proportional representation by means of the single transferable vote. Women are eligible for election in the same way as men. A central body called the Local Appointments Commission is charged with the duty of selecting suitable persons to be appointed by local authorities to chief executive offices, professional and technical offices, and certain other offices.

**Political parties.** The largest political parties are Fianna Fáil and Fine Gael (q.v.). Other parties are the Labour party, which originated with the addition of political functions to the T.U.C. in 1912, and became a separate body in 1930; Clann na Poblachta (q.v.); Clann na Talmhan, the Farmers' party, founded in 1938; and the new Sinn Féin party.

**Agriculture, etc.** The country is predominantly agric. The acreage devoted to the prin. crops in 1957 was: wheat, 396,900; malting barley, 111,500; other barley, 208,500; oats, 455,300; rye, 2700; potatoes, 263,500; turnips, 108,700; sugar beet, 70,900; cabbage, kale, etc., 54,400; flax, 400; hay, 1,944,700; fruit, 12,300. The area under pasture was 8,082,200 ac. The total acreage given to

crops and pastures was 11,765,000, an increase of 83,600 ac. on 1956. The figures for live-stock on 1 June 1957 were (1956 figures given in brackets): milch cows, 1,232,200 (1,186,500); heifers in calf, 118,600 (109,500); bulls, 18,100 (19,000); other cattle, 3,083,700 (3,221,500); horses, 260,700 (276,400); sheep, 3,723,400 (3,439,300); pigs, 906,700 (747,100); turkeys, 1,285,800 (1,527,000); geese, 492,600 (540,500); ducks, 741,300 (767,300); other fowl, 12,406,700 (13,527,200). In 1955 7614 persons were engaged in fishing, and there were 645 motor-, 582 sail-, and 1537 row-boats. The value of fisheries in the same year was: demersal fish, £593,140 (193,916 cwt.); pelagic fish, £93,005 (109,603 cwt.); shell fish, £196,103.

**Resources and industry.** The mineral produce of Rep. of I. is small; gypsum, marble, slate, and limestone are quarried, and minor quantities of coal, copper, iron, lead, and barytes are found. There are large supplies of turf (peat). The gross value of output for the prin. industries in 1954 was: grain milling, etc., £31,390,816; tobacco, £30,567,822; butter (creamery), cheese, milk products, £30,192,846; bacon, etc., £26,327,806; assembly and repair of motor vehicles, £16,875,849; bread, biscuits, etc., £15,417,934; sugar, cocoa, chocolate, etc., £15,367,527; brewing, £13,190,659; clothing (factories), £12,444,320; woollen and worsted (excluding clothing), £11,372,394; slaughtering, etc. (excluding bacon), £11,050,616; metal trades, £9,192,095; printing, publishing, £8,580,591; paper, etc., £7,702,588; hosiery, £6,634,581; boot and shoe (factories), £6,273,537; wood and cork manufs. (excluding furniture), £6,165,072; structural clay, asbestos, cement, concrete products, etc., £5,730,994; electrical machinery, etc., £4,722,476; miscellaneous textile manufs., £4,692,853; leather, £4,657,839; oil, paint, ink, polish, £4,282,673; linen, cotton, £4,044,027; fertiliser, £4,029,408; preserved foods, £3,545,896; furniture, etc., £3,510,193; railway equipment, £2,801,658; chemicals, £1,915,004; butter blending, margarine, etc., £1,833,915; glass, china, etc., £1,818,712; aerated and mineral waters, £1,728,888; machinery (other than electrical), £1,656,093; malting, £1,616,834; distilling, £1,504,165. Electrical resources (both hydro-electric and from turf-fired generators) are being extensively developed.

**Commerce.** The value of imports and exports of merchandise for 3 years was:

TABLE III

	1955 £	1956 £	1957 £
Imports	207,700,000	182,800,000	184,800,000
Total exports	110,900,000	108,100,000	131,200,000

The values of the prin. types of merchandise in 1955 were:

TABLE IV

	Imports £	Domestic Exports £
Live animals	4,067,923	44,617,474
Food, drink, tobacco	41,946,980	34,671,010
Other raw materials and manufs.	151,000,421	22,211,677

The distribution of external trade in 1957 was:

TABLE V

	Imports £	Domestic Exports £
Great Britain . . . . .	97,024,236	78,117,096
Northern Ireland . . . . .	8,537,672	21,592,247
Australia . . . . .	3,926,441	90,660
Canada . . . . .	3,738,223	786,507
India . . . . .	6,028,074	281,556
Malaya . . . . .	778,147	221,000
British W. Africa . . . . .	1,388,898	45,662
British W. Indies . . . . .	1,366,916	387,989
Argentina . . . . .	753,244	7,629
Belgium/Luxembourg . . . . .	3,794,112	1,583,016
Brazil . . . . .	139,474	21,977
Cuba . . . . .	544,932	9,701
Finland . . . . .	2,557,104	259,099
France . . . . .	3,100,686	1,878,593
Germany (Federal Republic) . . . . .	6,947,634	3,272,217
Italy . . . . .	1,452,932	927,516
Japan . . . . .	1,444,115	169,164
Netherlands . . . . .	4,588,956	988,941
Sweden . . . . .	2,861,881	580,061
Switzerland . . . . .	569,200	85,337
U.S.A. . . . .	10,624,108	3,959,468
Denmark . . . . .	1,453,127	80,713
Spain . . . . .	840,107	1,340,093
Canada . . . . .	3,738,223	786,507

Trade with the U.K. in 1956 (Brit. Board of Trade returns) was: imports to U.K., £289,748,807; exports from U.K., £103,296,842; re-exports from U.K., £5,796,499.

**Religion.** Religious affiliations were not enumerated in the census of 1956. According to the census of 1946 they were: Rom. Catholics, 2,786,033; Protestant Episcopalians, 124,829; Presbyterians, 23,870; Methodists, 8355; other professions, 12,020. In 1955 the Society of Friends had 830 members. The Rom. Catholic Church has archbishoprics of Dublin (primacy of I.), Cashel, and Tuam, and bishoprics of Meath, Ardagh and Clonmacnoise, Clogher (cathedral in Monaghan), Kilmore, Raphoe, Clonfert, Elphin, Ferns, Galway and Kilmacduagh, Kildare and Leighlin, Ossory, Clonfert, Cork, Kerry, Killaloe, Limerick, Waterford and Lismore, Achonry, Killala, and Ross. The Church of I. (Protestant Episcopalians) has an archbishopric of Dublin (primacy of I.), and bishoprics of Meath, Kilmore, Tuam, Ossory, Cashel, Cork, Killaloe, and Limerick. *See also Constitution and government above.*

**Education.** Elementary education is given in the national schools and is free. In 1955 there were 4872 national schools, with some 479,500 pupils and 13,900 teachers. State-aided training colleges numbered 6. Since the estab. of the state the Irish language has formed an essential part of the curriculum for schools subsidised by the gov. Secondary schools are under private control, many of them being conducted by religious orders. Schools receiving state grants are open to inspection by inspectors of the Dept of Education. The number of recognised secondary schools in 1955-6 was 474, attended by 59,306 pupils; 246 vocational schools had 90,777 pupils in 1954-5; they were maintained partly by the rates and partly by gov. grants. The estimated state expenditure for these centres in 1956-7 was £1,179,510. Education in agric. science is provided by the univs., by the Dept of Agriculture, and by the co. committees of agriculture. Univ. education is given at the univ. of Dublin Trinity College, q.v., founded in 1591, and at the National Univ. of I., founded in Dublin in 1909, which has

constituent colleges at Dublin, Cork, and Galway. St Patrick's College, Maynooth, is also a college of the National Univ. Univ. statistics for 1955-6 were:

judges, and has appellate jurisdiction from all decisions of the High Court, and on questions of law from all decisions of the Circuit Court in workmen's compensation

TABLE VI

	<i>Academic Staff</i>	<i>Students</i>
Trinity College, Dublin . . . .	169	1,932
Univ. College, Dublin . . . .	221	3,703
Univ. College, Cork . . . .	101	1,189
Univ. College, Galway . . . .	72	959
St Patrick's College . . . .	46	555

**Health and social services.** Persons unable to provide for medical attention from their own resources are entitled to free general practitioner, specialist, and hospital services (including medicines and appliances, and maternity and child services). Persons in the 'middle income group' (insured persons, those whose yearly means are less than £600, and farmers whose property has a rateable valuation of £50 or less) are entitled to free specialist, maternity, infant welfare, and mental hospital services, and to hospital treatment at a charge not exceeding 6 shillings per day. Hospital treatment for T.B. and certain other infectious diseases is free to all sections of the community. Pupils of national schools have free health services, and there are free child welfare clinics (for children under 6) in many urb. areas. Insurance services were unified by the Social Welfare Act, 1952. There is a gov. department of social welfare under the direction of a minister. Children's allowances are payable for the second and each subsequent child in a family. In addition to insurance benefits there are the following assistance services (subject to means and, sometimes, residence tests): non-contributory widows' and orphans' pensions; old age pensions, payable at 70; blind pensions, payable at 21; unemployment assistance to those not eligible for unemployment benefit. A person unable to provide the necessities of life for himself is eligible for public assistance.

**Justice.** Judges are appointed by the president on the advice of the gov.; they are independent in the exercise of their judicial functions, and their remuneration may not be reduced during their terms of office. A judge may be removed from office only for stated misbehaviour or incapacity, and then only on resolutions passed by both Houses of the Oireachtas. Judges of the Supreme, High, and Circuit Courts are appointed from among practising barristers; judges of the District Court may be appointed from among practising barristers or practising solicitors. The jurisdiction and organisation of the courts are dealt with in the Courts of Justice Acts, 1924-53.

The Supreme Court consists of the Chief Justice (who is *ex officio* an additional judge of the High Court) and 4 other

cases. A bill which has been passed by both Houses of the Oireachtas may be referred to the Supreme Court by the president (after consultation with the Council of State) for a decision on the constitutionality of the bill or any of its provisions. The High Court consists of a president (who is *ex officio* an additional judge of the Supreme Court) and 6 other judges, and has full original jurisdiction in and power to determine all matters and questions, whether of law or fact, civil or criminal. It has original jurisdiction in matters touching the constitutionality of any law, and on circuit acts as an appeal court from the Circuit Court. There is also a Court of Criminal Appeal (consisting of a judge of the Supreme Court and 2 judges of the High Court), and there is a Central Criminal Court (consisting of a judge of the High Court).

The country is divided into circuits for the purposes of the Circuit Court, the president of which is *ex officio* an additional judge of the High Court. The Circuit Court has jurisdiction in civil matters up to £600 in contract and tort and £2000 in equity (but with the consent of the parties its jurisdiction is unlimited), and in criminal matters has jurisdiction in all cases except treason, murder, piracy, and allied offences. It acts also as an appeal court from the District Court. The District Court has a summary jurisdiction in minor criminal cases and in civil cases (except for slander, libel, seduction, slander of title, malicious prosecution, and false imprisonment) where the claim does not exceed £50. Criminal cases (except minor cases) are tried by a judge and a jury of 12; the verdict of a jury must be unanimous. Where a jury is used in a civil case the agreement of 9 members is sufficient.

**Defence.** Subject to the provisions of the Defence Act, 1954, and under the direction of the President of the Rep., the defence forces are controlled by the gov. through the minister for defence. He is advised by a council of defence. The defence estimates for 1956-7 provided for 25,000 all ranks. Recruitment is on a voluntary basis. Minimum service in the army is for 3 years, with 6 years on the reserve. Enlistment in the navy is for 6 years, with 6 years on the reserve. The naval service has 3 corvettes: *Macha*, *Cliona*, and *Maev*. There is an Army

Air Corps, and there is a part-time force called *Forsa Cosanta Aitiuil* (F.C.A.).

**Communications.** The net tonnage in foreign trade in 1955 was: entered, 9852 vessels of 8,987,938 net tons; cleared, 9903 vessels of 9,017,593 tons. There are 566 m. of inland navigation, including the Grand Canal (208 m.), the Shannon navigation (150 m.), and the Royal Canal (96 m.). In 1955 there were 50,377 m. of public roads, comprising 9855 m. of main roads, 39,501 m. of co. roads, and 1021 m. of co. bor. and urb. roads. In 1955 there were 127,511 private motor cars, 40,175 commercial goods vehicles, 6314

in circulation. The Bank of I. (founded 1783) had, on 31 Dec. 1955, a capital of £2,769,230. Other banks are the Hibernian Bank, the Munster and Leinster Bank, the Provincial Bank of I., the Royal Bank, the Ulster Bank, the N. Bank, the National City Bank (affiliated to the Bank of I.), and the National Bank. (See Table VII, page 161.)

**National flag and anthem.** The national flag is green, white, and orange (in vertical bands). The national anthem is *A Soldier's Song*.

**History.** from the institution of the Irish Free State in 1922. (For the hist. of



*Bord Fáilte Éireann*

#### THE ROCK OF CASHEL, COUNTY TIPPERARY

The buildings on the rock include a round tower, Cormac's Chapel, a cathedral dating from Norman times, and a medieval castle and hall.

public service vehicles, 21,436 motor bicycles, and 40,175 agric. tractors. The length of railway track in 1955 was 2259 m., and the railways carried 17,240,418 passengers, 3,153,254 tons of merchandise, and 843,905 live-stock. Public transport services are provided mainly by *Córas Iompair Éireann* (C.I.E.) and the Great N. Railway Board (acquired jointly by the govs. of N. I. and the Rep. in 1953). Services operated by Aer Lingus (which has regular flights between Dublin and Shannon, and various cities of Great Britain and continental Europe) carried 402,255 passengers, 13,338,360 lb. of cargo, and 3,632,710 lb. of mail in the year ended Mar. 1956. An Irish transatlantic air service, Aerlinte, was inaugurated in April 1958. It is operated in conjunction with the Amer. Seaboard and W. Airlines.

**Finance.** The unit of currency is the Irish pound, which has the same value as the pound sterling. There is a distinctive Irish currency, in the same denominations as Eng. currency. Eng. currency is also

I. prior to 1922 *see* IRELAND.) The Anglo-Irish treaty of Dec. 1921, was ratified by Dáil Éireann in Jan. 1922 and a provisional gov. of the Irish Free State was set up. The first task of the new gov. was to settle the civil disturbances which had resulted from the refusal of a minority of the Sinn Féin (q.v.), and *see* IRISH REPUBLICAN ARMY) leaders to accept the provisions of the treaty. After a period of guerilla fighting the 'Irregulars' were suppressed, but during the trouble, on 1 Aug. 1922, Arthur Griffith (q.v.), the president of the executive council, died, and 10 days later Michael Collins (q.v.) was assassinated. Mr W. T. Cosgrave (q.v.) then became head of the executive, and Mr T. M. Healy (q.v.) was nominated as governor-general; Mr Healy was succeeded in 1928 by Mr James McNeill. Mr Cosgrave's pro-treaty party (*see* FINE GAEL) remained in power until 1932. The Republican party (*see* FIANNA FÁIL) of Mr de Valera (q.v.) put forward candidates at parl. elections, but these, when successful, could not sit in the Dáil

because of their refusal to take the Oath of Allegiance to the Crown. In 1927 the Dáil passed an Electoral Amendment Act making it necessary for parl. candidates to subscribe to the Oath in order to be eligible for election. The Fianna Fáil candidates thereupon took the Oath, declaring beforehand that they regarded it as an 'empty formula.' After the general election of Feb. 1932, the Fianna Fáil party, by uniting with Labour and Independent members, secured a majority in the Dáil, and a gov. under Mr de Valera's leadership took office. A bill

commutation of the annuities, the special trading duties were amended, and the Brit. Gov. relinquished the rights in the Irish naval ports (such as Cóbh and Lough Swilly) which it had been given by the treaty of 1921.

In 1935 the Dáil passed bills to abolish the Senate and univ. representation. The governor-general was replaced by a seneschal. These matters were, however, reconsidered before a new constitution (see above) was framed in 1937. The new constitution declared I. to be a sovereign, independent state; no mention was made

TABLE VII

	1956-7 Estimates
<i>Receipts</i>	£
Customs	43,255,000
Special import levy	3,000,000
Income, profit, super taxes	28,234,000
Excise	18,265,000
Post office	7,700,000
Stamp duties	1,875,000
Estate, etc., duties	2,850,000
Motor vehicle duties	5,750,000
Total	<u>121,791,000</u>
<i>Expenditure</i>	£
Agriculture, land division, etc.	14,827,000
Education, science, art	12,630,000
Social welfare	20,969,000
Debt service	19,673,000
Post office	7,200,000
Police	4,019,000
Army and army pensions	8,664,000
Superannuation	3,227,000
Food subsidies	8,184,000
Total	<u>132,791,000</u>

was introduced to abolish the Oath of Allegiance; it was passed by the Dáil but was rejected by the Senate. A more serious issue was the gov.'s decision not to continue the payment to Great Britain of the Land Annuities, and its refusal to submit the matter to arbitration by a Commonwealth tribunal. These annuities originated in the various Land Purchase Acts, under which Irish tenants were enabled to purchase their holdings through loans made by the creation of land stock. The ann. sum due was £3,000,000. The Brit. Gov. endeavoured to collect the money by imposing tariff duties on Free State exports to the U.K., and the Free State retaliated with duties on U.K. imports. While this 'economic war' was going on, the Free State Gov. initiated plans aiming at the estab. of economic self-sufficiency. The question of the Land Annuities was settled in April 1938 by an agreement signed in London (after negotiations between Mr de Valera and Mr Neville Chamberlain), under which the Irish Gov. paid £10,000,000 in

of the Crown, but the External Relations Act of 1936 remained in force, giving the Crown certain functions in the concluding of treaties and the accrediting of diplomatic representatives. The gov. of the U.K. and the dominions agreed that the constitution should not effect a fundamental alteration in the position of I. in the Commonwealth. When the Second World War broke out, the Irish Gov. declared the neutrality of the state, a position which was maintained throughout the war. A large number of Irish men and women from the 26 cos., however, joined the Brit. forces, and many others found war work in the U.K. The last formal links with the Brit. Commonwealth were severed in April 1949 by the coming into force of the Republic of Ireland Act, 1948. The *Taoiseach*, Mr J. A. Costello (q.v.)—whose coalition gov. had succeeded the Fianna Fáil administration in 1948—had previously made it clear that this step was being taken without any feelings of ill-will towards the Commonwealth or the Crown, and

the Brit. Prime Minister, Mr Attlee, had pledged that Great Britain would not treat the Rep. of I. as a foreign country or her citizens as foreigners. The Ireland Act, 1949 (of the U.K. parliament), subsequently recognised the secession of the Rep. of I. from dominion status, and confirmed citizens of the Rep. in the rights which they had hitherto enjoyed in the U.K. In 1951 Mr Costello was defeated at the polls by Mr de Valera's Fianna Fáil party, but was again returned to power in the general election of 1954. At the general election of Mar. 1957 Mr Costello was defeated and Mr de Valera again became *Taoiseach*.

Minor, and in early youth a disciple of Polycarp (q.v.). He was a priest of the church at Lyons under Pothinus, its bishop, and at his martyrdom in 177, in the persecutions of Marcus Aurelius, succeeded to the see which he held for 25 years. He laboured as a missionary among the pagan Gauls, but is best known for his attempts to mediate between the Pope and the churches of Asia Minor in their dispute about the proper date of Easter, and for his opposition to the Gnostics (q.v.) and the Valentiniens. The earliest account of his martyrdom under Severus is that of Gregory of Tours, and is probably a mistake. Of his



THE CLADDAGH, GAIWAY

British Railways

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**Ireland Island**, see BERMUDAS.

**Irenaeus**, St (c. 120-203), Bishop of Lyons (Lugdunum), b. Smyrna, Asia

writings, a few fragments of *Adversus Haereses*, in the original Greek, and a barbarous Lat. trans. of it are all that remain. See editions of his works by Erasmus, 1526; A. Stieren, 1848-53; W. W. Harvey, 1857; and in Clark's Ante-Nicene Library; and Le P. Salvator Herrera, *St Irénée de Lyon évêque*, 1920; L. Spikowski, *La Doctrine de l'église dans St Irénée*, 1926; S. Lundström, *Studien zur lateinischen Irenaeus Übersetzung*, 1943.

**Irene**: 1. (c. 752-803), Byzantine empress. She came from a talented but impoverished Athenian family, and married Leo IV in 769. On the death of Leo (780) she ruled over the empire as regent, her son, Constantine VI, being only 10 years of age. She restored orthodox image worship. Constantine was proclaimed sole ruler by the soldiers in 790, but I. plotted against her son, and had his eyes put out. A marriage between herself and Charlemagne was at one time a possibility. From 797 to 802 I. ruled alone, but in 802 she was banished to Lesbos, Nicephorus, her treasurer, being placed on the throne.

2. Goddess of Peace, daughter of Zeus and Themis, worshipped at Rome (as Pax) and at Athens.

**Ireton, Henry** (1611-51), Parliamentarian general, *b.* Altenborough, Notts, graduated at Cambridge Univ., 1629, and studied law. Married Cromwell's daughter, Bridget, and acquired great influence in the Parliamentarian party. Took an active part in the Civil war, on the outbreak of which in 1642 he was nominated captain of a troop of horse to be raised at Nottingham, near which in his estates were situated. In 1645 he became Commissary General of the Horse in the New Model Army. He signed the warrant for the execution of Charles I. In 1649 he went to Ireland as Cromwell's deputy. He *d.* of fever when besieging Limerick. See life by R. W. Ramsay, 1949.

**Iria**, see **VOGHERA**.

**Iria Flavia**, see **SANTIAGO DE COMPOSTELA**.

**Iriarte, Tomás de** (1750-91), Sp. poet, *b.* Orotava, Tenerife Is. He began his literary career by the trans. of Fr. plays, publishing his first original comedy, *Hacer que hacemos*, in 1770. In 1771 he became official translator in the foreign office at Madrid, and in 1776 keeper of the records in the War Office. A dull didactic poem, *La Música* (1780, Eng. trans., 1807), inspired by Haydn, was much admired, but his fame rests mainly on his *Fabulas Literarias* (1782, Eng. trans., 1808), 2 of which, *The Donkey Plunkist* and *The Dancing Bear*, are especially celebrated. See E. Cotarelo y Mori, *Iriarte y su época*, 1897.

**Iridaceae**, family of monocotyledonous plants, consisting of nearly 1000 species, which flourish in temperate and tropical lands. They are usually herbaceous plants of such beauty as to justify their cultivation for ornament alone. Genera include *Acidanthera*, *Anholzya*, *Babiana*, *Crocossinia*, *Crocus*, *Dierama*, *Ferraria*, *Freesia*, *Gladiolus*, *Iris*, *Ixia*, *Schizostylis*, *Spargaxis*, *Tigridia*, *Tritonia*, *Watsonia*, etc.

**Iridium**, one of the metals of the platinum group. Its symbol is Ir, its atomic number 77, and its atomic weight 193.1. It occurs as an alloy of platinum, and also of osmium in the Urals, Brazil, and elsewhere. It is fusible only with difficulty, extremely insoluble (in the massive form it is not attacked by *aqua regia*), and separable from its allied elements only with difficulty. The best method for its preparation is that devised by St. Claire Deville and Debray. This consists in fusing osmiridium with zinc, distilling off the latter so as to leave a porous mass. This is powdered, mixed with barium nitrate, and ignited. The osmium is converted into barium osmate, and the Ir. into its oxide. On boiling with nitric acid the osmium is volatilised as the tetroxide, while the Ir. is obtained in solution from which the double ammonium chloride can be prepared. This, on ignition, gives Ir. in a spongy form, which, on fusion with lead and subsequent treatment with nitric acid, gives the pure metal. Ir. is used for pointing gold pen-nibs, for electrical sparking contacts, and for making standard measures. Its compounds resemble those of platinum (q.v.).

**Iridosmine**, see **OSMIRIDIUM**.

**Iriga**, in of the prov. of Camarines Sur, Luzon, Philippine Is. The chief products are rice, Indian corn, and abaca. Pop. 42,049.

**Iris** (Gk 'rainbow,' of which she is the personification), daughter of Thaumas by Electra, and sister of the Harpies. She appears in the *Iliad* as messenger of the gods, but is not mentioned in the *Odyssey*. Most of the early poets represent her as a virgin deity, but Alcaeus describes her as the wife of Zephyrus and mother of Eros.

**Iris**, one of the larger of the asteroids (q.v.), first discovered in 1801 and 1802.

**Iris**, family Iridaceae, genus of about 200 species, tuberos or bulbous perennial herbs of temperate regions of the N. hemisphere. Rhizomatous or non-bulbous I.s are divided into 7 sections: 1. Bearded (Pogon): *I. germanica*, 2. Cushion (Onocyclotus): *I. gatesii*, *I. tortitii*, *I. iberica*, 3. Regelia I.s: *I. hoogiana*, *I. korolkowi*, 4. Pseudoregelia I.s: *I. sikkimensis*, *I. hookeriana*, 5. Beardless (Apogon): *I. sibirica*, *I. douglasiana*, *I. hexagona*, *I. kumpferi*, *I. laevigata*, *I. unguicularis*, etc. 6. Crested (Evanzia): *I. tectorum*, *I. japonica*, *I. cristata*, etc. 7. Pardonopsis: *I. dichroma*. Bulbous I.s are divided into 3 sections: 1. Reotulata type, including *I. danfordiae*, *I. bakeriana*, *I. histroides*, 2. Juno: *I. alata*, *I. graeberiana*, *I. bucharica*, 3. Xiphoid: *I. linguaria*, Dutch I.s, Sp. I.s, Eng. I.s, while *I. nepalensis* and *I. collettii* form another section, and *I. sisyrinchium*, with a cormous rootstock forms a section its own. There are innumerable vars. and hybrids. I.s native to Britain are *I. foetidissima*, the Gladdon or Stinking I., *I. pseudacorus*, Yellow Flag, *I. spuria*, *I. versicolor*, and *I. germanica* is naturalised. See W. R. Dykes, *The Genus Iris*, 1913; G. Anley, *Iris, their Culture and Selection*, 1948; N. L. Cave, *The Iris*, 1950.

**Irish Architecture**, prior to the Anglo-Norman conquest of the country in 1169, comprised sundry small chapels or oratories erected after St. Patrick's landing in AD 432; and numerous round towers, built as refuges or watch-towers after the Dan. and Norse invasions in the 8th cent., e.g. at Clonmacnoise, Glendalough, Ardmore, Cashel, Kilkenny, Kildare, Kells, and Donaghmore. Carrickfergus Castle near Belfast was erected soon after the Eng. conquest, and there was naturally much activity in building churches in the Romanesque or 'Norman' style. These included Cormac's Chapel at Cashel, 1134; the Nun's Chapel at Clonmacnoise, c. 1168; the doorway of Clonfert Cathedral, c. 1166; and the chancel of St. Saviour at Glendalough. The building of the 2 cathedrals at Dublin then began, Christ Church in 1172 and St. Patrick's in 1190; but their architectural style did not differ substantially from contemporary work in England. The other chief Gothic churches in Ireland are Kilkenny Cathedral (mid 13th cent.) and the abbey of Muckross, Quin, and Holycross. In 592 Queen Elizabeth I founded Trinity

College, Dublin; but building in general languished throughout the disturbed 16th and 17th cents. Kilmmainham Hospital, Dublin (1680), is a rare exception. During the 18th cent., however, the brilliant Georgian period beautified Dublin with many notable buildings, including the Custom House, the Four Courts, Trinity College with its fine library, the House of Lords, the Bank of Ireland (formerly the Parliament House), the City Hall (formerly the Royal Exchange), and the Casino at Marino. Rich noblemen adorned the city with handsome town houses, and built splendid country mansions elsewhere, e.g. Powerscourt. Important buildings of the past hundred years include the Anglican cathedral (1863-70), the Church of Christ the King (1928-30), and the Franciscan church (1950-5) at Cork; the National Library of Ireland (1890) and the Church of St Thomas (1930), both in Dublin; the Belfast City Hall (1896-1902); and the Parliament Buildings of N. Ireland at Stormont near Belfast (1928-32).

**Irish Free State (Saorstát Éireann)**, name given to 'S. Ireland' by the Irish Free State (Agreement) Act, 1922, which created a dominion in Ireland (excluding the 6 cos. of 'N. Ireland,' q.v.) on the Canadian model. In 1937, under the gov. headed by Mr de Valera (q.v.), the name of the state became Ireland (Éire). See IRELAND, REPUBLIC OF.

**Irish Fusiliers (Princess Victoria's), The Royal**, formerly the 87th and 89th Regiments. The 87th was formed in 1793, and fought under Abercrombie in Egypt in 1801. It gained great fame as the '*Faugh-a-Ballagh's*' (Clear the Ways) in the Peninsula, where Sergeant Masterston of the regiment captured the first Mr. Eagle during the campaign. It then took part in the Crimean War, the 1882 Egyptian campaign, and the Burmese War of 1885. The R. I. F. took part in the S. African War (1899-1902), and was at the relief of Ladysmith. During the First World War it raised 14 battalions, which fought in France, Flanders, Macedonia, Gallipoli, and Palestine. After the war it was reduced to 1 battalion, and joined with the Royal Inniskilling Fusiliers to form 1 corps. In the Second World War the regiment was part of the famous Eighth Army and fought in many battles on the It. front. Detachments of the regiment also formed part of the Brit. garrison in Leros. See M. Cunliffe, *The Royal Irish Fusiliers, 1793-1960*, 1952.

**Irish Guards**, formed in 1900 to commemorate the gallantry of Irish regiments during the S. African War, 1899-1902. It was formed from volunteers from other regiments of foot guards. During the First World War it raised 3 battalions which served in France and Flanders, bearing the following honours, among others, on its colours: Mons, Marne, Ypres, Gheluvelt, Loos, Somme, Passchendaele, Cambrai, Bapaume, Hindenburg Line, and Sambre. In the Second World War the I. G. fought in numerous battles in Italy and in NW. Europe.

'**Irish Independent**,' founded in 1905 as a halfpenny daily newspaper and pub. in Dublin. For hist., see its golden jubilee number, Jan. 1955. It is independent of all political parties and promotes Irish art and industry. It specialises in foreign and Catholic news and features serials as well as literary criticism. The *I. I.* and its satellites the *Evening Herald* and the *Sunday Independent* are strong in world sports news.

**Irish Language and Literature. Language.** The languages which were spoken in the Brit. Is. at the beginning of recorded hist. belonged to the Celtic section of the Indo-European family, and were thus closely related to Gaulish and the other Celtic languages of the Continent. It would seem that the various Celtic languages were still quite closely interrelated 2000 years ago, but by the time we begin to find datable literary documents the 2 surviving groups, Brit. and Irish, had certainly become mutually unintelligible. The Brit. group split up comparatively early into Welsh, Cornish, and Breton; Irish, on the other hand, remained 1 language, both at home and in the Irish colonies in Scotland and Man, for many cents.; it is only in the last 400 years that Scottish Gaelic and Manx (see SCOTTISH GAELIC LANGUAGE AND LITERATURE) have emerged as separate languages. The word for this language was, in its oldest form, *Goidelg*; from this has developed the Scottish *Gàidhlig*, and the Scottish dialect is therefore known as Gaelic, while the Irish type has been usually described simply as Irish.

**Literature.** While there is no evidence that the Celtic peoples had a common literature, they had many similarities in social structure. Classical writers describe the Gauls as having a threefold class system; as well as the nobles and the common people, there was a third class, called *druides*, concerned, like the Brahmins of India, with religion and learning. Although Rom. learning was well known to the *druides*, they did not use the Lat. alphabet for writing down their language, but preferred to hand on their doctrine by word of mouth. The same seems to have been true of Ireland, for, although the learned men there must have had enough information about Latin to construct the Ogam (q.v.) alphabet, they did not use it for writing. The coming of the Christian missionaries to Ireland must have brought about a great struggle between 2 rival systems. The details are quite uncertain but we find that eventually a sort of compromise was arrived at: the church took over all the religious functions of the learned men, and used Latin for these purposes, while the learned men adapted the Lat. alphabet for writing Irish, which they used to deal with the whole field of law and tradition. Ireland thus became the first country outside the Mediterranean area to possess a vernacular literature.

The learned man (usually called *filí* rather than *druid*, 'druid,' which was apparently unacceptable to the Church)



did not, of course, look on himself as a literary man; he was the guardian of a primitive tradition rather like that which we find in the Old Testament, where hist., religion, law, and genealogy are all mixed up together. Even in matters of technique the comparison will stand, for rhyme and metre in the modern sense were unknown to early Irish, while rhythm, alliteration, and parallelism were used in heightened passages, so that it is often hard to say where prose ends and poetry begins. This is the type of literature which was transmitted by word of mouth before it began to be written down, and it soon came to be influenced by the Lat. literature which existed side by side with it; we find quatrains with lines of regular length, adapted from Lat. hymn metres, and rhyme. The ordinary saga is a heroic story of a few thousand words, usually showing both the old rhetorical devices and the more modern verse. For the earliest period of Irish literature, that is, from the 7th to the 10th cents., this is the commonest form of prose; like the Homeric epics, its theme is a far earlier period, of pagan chariot-riders and head-hunters, and of men fettered by tabus (*geasa*), and it must embody very old traditions. These sagas have attracted many translators and adapters; the story of the sons of Uisliu, for example, which introduces Níslu and Deirdre, has been handled by Yeats and Synge. They are essentially short stories, unlike the sagas of Iceland, for the Irish never mastered the composition of a long epic. It is usually said that the famous Cattle-raid of Cooley (*Táin Bó Cúallge*) was an attempt at an Irish Aeneid; if so, it was a singularly unsuccessful one, for, after a good beginning, it falls away into a string of disconnected incidents.

Although saga literature has the greatest appeal for the modern reader, it was not the only type of prose written during the early period, for we also find masses of genealogical and historical material—these categories were indistinguishable in the minds of the compilers—as well as law texts and saints' lives. These 2 latter classes, which purport at least to represent the life of the Christian Ireland in which they were written, if of little literary importance, are nevertheless of considerable value for the information we can deduce from them about the political and social life of the period.

As has been said already, the distinction between prose and verse was originally an unimportant one to the Irish *filí*. No doubt there were certain types of composition which were normally put entirely into the heightened language which later becomes verse—panegyrics, for example. These were the function of the *bard* (q.v.), who was originally one of the lower classes of the *filí*; it was in later periods, when poets found themselves depending more and more upon the panegyric for their livelihood, that the word *bard* came to be applied to them generally. But little bardic verse, in the proper meaning of the word, survives from the early period;

indeed we have comparatively little of the work of the *filí*, except for a considerable number of tantalising fragments quoted as examples in later works of metrics. But, to make up for this, there is a great body of religious and nature poetry, in metres less elaborate than those of the professionals, written and preserved by monks. This kind of writing, which no doubt began with the hermits of the early Irish Church, lasted from the 8th to the 11th cents. It is the first example of personal poetry in Irish, and, in its almost Jap. economy of words and directness of observation, the most appealing to the modern reader.

The 12th cent. brought a considerable change in the nature of Irish literature. We find an increasing preoccupation with the past; indeed our knowledge of the earlier literature is mainly due to great collections made in the 12th and subsequent cents. This may well have been because continuous change in the language had made the older literature obscure even to the learned (1 glossary from the beginning of the 10th cent. survives); certainly the classical language evolved at this time represents a clean break with those periods usually called Old and Middle Irish. From the beginning of the 13th cent. onwards we find that literature was in the hands of a new hereditary lay class, whose primary economic support was the composing of praise-poems, and who may therefore be accurately described as bards. The language which they evolved, and which, for the writing of verse at least, remained unchanged for 4 cents., is usually called Early (or Classical) Modern Irish. As collectors they were antiquarians, but as writers they were modernists. For prose themes they drew on the folk-tales of Fionn and the Fianna (the cycle to which the story of Diarmuid and Gráinne belongs and the ultimate inspiration of the Macpherson forgeries), as well as on all the romantic material of contemporary Europe, with which the Norman invasion of 1175 had brought them into contact. In only one respect did European manners affect the verse of the period; some of the poets, and rather more of their aristocratic patrons, succeeded in combining the conventions of *amour courtois* with the technique of bardic poetry to produce witty and polished love poems, of which all too few have come down to us. For the rest, the bardic verse, though highly polished, was heavy and lifeless. The prose, on the other hand, under the influence of foreign models, grew increasingly flexible, though showing that inclination to rhetoric and bombast which always threatens Irish literature.

The first period of Irish literature might be described as primitive and indigenous, the second medieval and European. As a medieval literature it stands comparison with any in Europe, though it favoured the survival of medievalism long beyond its time. The Irish had had no tns; these were founded by Scandinavians, Normans, and English, and remained strongholds of

foreign culture even when the rest of the country was thoroughly Irish. As a result, there was no Irish-speaking bourgeoisie and no Irish univ. where the new ideas of the Renaissance could have free play; and, after the Reformation, anti-English feeling made all contemporary ideas seem dangerously tainted with Protestantism. Again, the lack of the meant unfamiliarity with printing. While books had been freely available in most European lands from the 16th cent. onwards, Irish continued to be written by hand on vellum until the end of that cent., thus making it a luxury available only to the great. When the power of the Irish aristocracy was finally broken during the reign of Elizabeth I, the literary class had lost their only support; by the middle of the 17th cent. they had ceased to exist.

The period which followed, and which lasted up to the beginning of the 19th cent., was that of an almost underground popular literature, written and circulated in paper MSS. At first an attempt was made to keep up the old classical speech, but this proved too hard for those who had not received the long professional training, and the local dialects, never before permitted in writing, made their appearance (as did Scottish Gaelic, and Manx). Song metres like those of English and Welsh were evolved, though still ornamented with alliteration and assonances in the traditional Irish style. The praise-poem did not completely die, since there were always a few great houses where Irish was understood and appreciated, but the more peasant themes of ballad, satire, and *pastourelle* tended to predominate. The prose, for the most part, was of an escapist kind; flamboyant reworking of Flann stories mingled with knightly romances of the kind which Cervantes had laughed to death in Spain cents. before. On the whole, the poetry is more satisfactory than the prose; as late as the beginning of the 19th cent. we find the fine *Midnight Court*, medieval in concept but contemporary in execution, being produced in co. Clare by Brian Merriman, and circulated by word of mouth, as well as by MS. After that, however, the literature, declining with the language, became more and more a matter of folksongs, and even these began to dry up after the great famine of 1846-7.

Up to now Irish literature had been the natural product of an Irish-speaking society, but politics brought a strange development. In the closing years of the 19th cent. there were still over 600,000 people whose native language was Irish, but though they had a rich inherited folk culture, they were largely apathetic as to its survival. Meanwhile a number of nationalists, few of whom spoke Irish, had arrived at the conclusion that a separate language was an essential mark of nationality, and the Gaelic League was founded in 1893 with the object of saving the language. It was swept along on a great wave of patriotic enthusiasm; Irish classes were organised throughout the

country, and every patriotic Irishman made at least an attempt to learn the language. Meanwhile, however, economic conditions in the Irish-speaking areas continued to deteriorate and emigration to increase, so that the strange picture presented itself of the pop. of these areas decreasing while the number of Irish speakers increased steadily, at least in theory. In the early days of the Gaelic League attempts had been made by those who had learned Irish to create a new literature; these were at best pedestrian and at worst ridiculous. But as an Irish-reading, if not Irish-speaking, public began to grow up, writers came from the Irish-speaking dists., and ever since the estab. of the Free State in 1922 there has been writing of a reasonably high standard; such names as Tomás Ó Críthin, Seosamh Mac Grianna, Máirtín Ó Cadhain, Liam Ó Flaherty (better known as a writer in English), and Máirtín Ó Direáin might be mentioned. It cannot be denied, however, that there is an element of artificiality in the situation whereby writers come from the Irish-speaking areas to live in Dublin and, to a large extent, write for an audience whose native language is English but who know Irish well. The future of the Irish language, as well as of its literature, depends on the extent to which the Irish-speaking areas can be preserved and built up.

See E. C. Quiggin, *Prolegomena to the Study of the Later Irish Bards* (Proceedings of the Brit. Academy, V), 1913; D. Corkery, *The Hidden Ireland*, 1925; J. H. Delargy, *The Irish Storyteller* (Proceedings of the Brit. Academy, XXXI), 1945; R. Flower, *The Irish Tradition*, 1947; M. Dillon, *Early Irish Literature*, 1948; K. Jackson, *Language and History in Early Britain*, 1953; G. Murphy, *The Ossianic Lore and Romantic Tales of Medieval Ireland*, 1955; *Irish Writing*, No. 33, 1955; G. Murphy, *Early Irish Lyrics*, 1956.

Irish Moss, see CARRAGEEN MOSS.

Irish Nationalist Party, see NATIONALIST. 'Irish Press, The,' daily morning newspaper, founded 1931 and pub. in Dublin. Its main policies are furtherance of industrial development and increase in agric. output; political outlook, national. It is strong in features for women and sport columns. Associated pubs. are the *Sunday Press*, founded 1949, a paper of wide popular appeal, and the *Evening Press*, founded 1954, and noted for its bright layout and magazine section, with a sale mainly in and around Dublin city.

Irish Regiment, The Royal, formed from certain independent companies which were regimented in 1683, which had originally formed part of the Cromwellian forces in Ireland. It fought at the Boyne and at Limerick under William III. It greatly distinguished itself at the fall of Namur in 1695, where its conduct gained from William III the grant of one of his own badges, the Lion of Nassau. It fought under Marlborough at Blenheim, etc., and under Abercrombie at Alexandria in 1801. It took part in the Crimea (1853-56),

Afghanistan (1879-80), New Zealand (1881), and Egypt (1882) campaigns, and was at Tel-el-Kebir. It was also in the S. African War of 1899-1902. In the First World War it raised 9 battalions, which served in France, Flanders, Macedonia, Gallipoli, and Palestine. As a consequence of the inauguration of the Irish Free State the regiment was disbanded in July 1922. See G. Le M. Gretton and S. Geoghegan, *The Campaigns and History of the Royal Irish Regiment* (2 vols.), 1911-27.

**Irish Republican Army (I.R.A.)**, name given to certain military or para-military organisations aiming at the estab. or extension of an Irish rep. A secret, oath-bound society, the Irish Republican Brotherhood (I.R.B.), founded in America in 1858 and associated with the Fenians (q.v.) in Ireland, became the most potent force within the Irish Volunteer movement, which was formed by nationalists in 1913 to counter the Unionist Volunteers of the N. of Ireland. In 1916 many of the Irish Volunteers took part in the 'Easter Rising' in Dublin (see SINN FÉIN), following the declaration of an Irish rep. In this way the I.R.A. was born. Later, after the convening of the first Dáil Éireann in 1919, the I.R.A. came into conflict with Crown forces throughout Ireland. After the ratification of the Anglo-Irish treaty of 1921, the I.R.A. (the 'old I.R.A.') split into 2 parts: the army of the Irish Free State (q.v.) and a (new) Republican Army, which supported those Sinn Féin leaders (see CHILDERS and DE VALERA) who rejected the treaty. In the guerilla conflict which ensued the Free State Army was victorious. During the 1930's the I.R.A. appeared in new form as a secret body of extremists. Its members organised bomb explosions in Great Britain, where severe punitive measures were taken against them, and numbers of them were deported to Ireland. In Ireland the Flanna Fáil (q.v.) gov. had prohibited para-military organisations, and during the Second World War it interned suspected members of the I.R.A.; a few I.R.A. members were executed. In the mid-1950's persons calling themselves members of the I.R.A. began a series of raids on police and other establishments in N. Ireland and, to a small extent, in England, causing loss of life and much damage to property. Strict security measures were instituted in N. Ireland, and sev. members of the I.R.A. were imprisoned. The gov. of the Rep. of Ireland also took vigorous emergency action in 1957; sev. I.R.A. men were imprisoned, and a larger number interned in a camp at the Curragh.

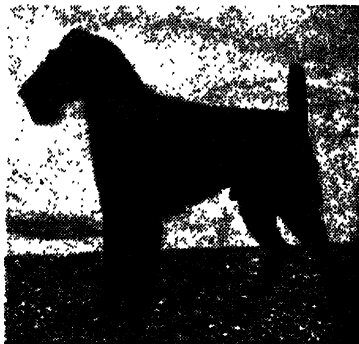
**Irish Rifles, The Royal**, see ULSTER RIFLES, THE ROYAL.

**Irish Sea**, sea which lies between England and Ireland, connected with the Atlantic on the N. by the N. Channel, and on the S. by St George's Channel. The greatest breadth (between Morecambe Bay, Lancs, and Dundalk Bay, Louth) is 150 m.; the greatest length is about 110

m. Within its boundaries are the Isles of Man, Anglesey, and Holyhead.

**Irish Setter**, see SETTER.

**Irish Terrier**, rather large dog, varying in weight from 17 to 25 lb.; with a hard, rough, and wiry coat, without any tendency to curl. Its usual colour is a bright reddish-brown, but varies through different shades of brown. Its head should be long and rather narrow; the ears small, filbert-shaped, and lying close to the head; the eyes small and hazel, and the nose black; the fore-legs straight and strong with round thick feet; chest narrow with deep brisket, and back straight and strong; the tail, if not cut, should curve. The I. T. is quite a modern breed, dating from about 1870; it is much valued for its affection and pluck.



IRISH TERRIER

T. Fall

'Irish Times,' daily paper pub. in Dublin, founded in 1859 by Maj. Lawrence Knox as a Unionist journal, and purchased in 1873 by Sir John Arnott. It is now a non-partisan newspaper, dedicated to the constitutional reunification of Ireland. The I. T. Co. also publishes a Sunday newspaper, the *Sunday Review*, and the *Irish Field*, a weekly devoted to every form of sport.

**Irish Water Spaniel**, see SPANIEL.

**Irish Wolfhound**, supposed to be the oldest breed of dog in the U.K., but the original breed in reality has died out, and information concerning it is only obtainable by tradition, although sev. attempts have been made to reproduce it. The old I. W.s enjoyed a great reputation for their strength and their courage in attacking wolves. In appearance they seem to have been of 2 kinds, one resembling a greyhound and the other a mastiff. Modern I. W.s are the result of the endeavours of Capt. Graham of Dursley, Glos., to reproduce the old breed, but there is no positive proof that they do so. They are the result of crossing the Great Dane and deerhound, but a fine specimen exhibited in 1895 was the result of crossing a bitch of Scottish hounds strain with a dash of Siberian wolf strain, with a

Russian wolfhound. The points of this modern breed, as required by the I. W. Club standard, are: general appearance not quite so massive as the Great Dane, but more so than the deerhound, the largest hunting dogs in existence, with minimum height of 31 in. and weight of 120 lb. (bitches 28 in. and 90 lb.), head long and narrow, muzzle long and moderately pointed, and ears small, and greyhound-like in carriage; neck long, very strong and muscular, well arched without dewlap; chest very deep and broad wide; back moderately long; loins arched; belly well drawn up; tail long and slightly curved, of moderate thickness and



T. Fall

## IRISH WOLFHOUND

well covered with hair; shoulders muscular and sloping; elbows well under; muscular thighs with second thigh long and strong, and hocks well let down; feet moderately large and round with toes well arched; hair rough and hard on body; any colour that appears in the deerhound but black is rare.

**Iritis**, inflammation of the iris (*see* EYE). I. may be acute, in which case it is usually due to a spreading infection from the conjunctiva and cornea. This is a painful condition; the eye is bloodshot and there is profuse watering. The patient resents light and any use of the eye is difficult. In acute I. the inflammatory exudate is apt to form adhesions between the iris and the lens, thus fixing the pupil. Once formed, adhesions are difficult to break down. Treatment consists in atropine drops to dilate the pupil and to keep the iris from contact with the lens, hot fomentations, an eye shade, and the appropriate antibiotic therapy locally and systemically. Chronic I. is as a rule due to tuberculous or syphilitic infection, or may arise from some chronic septic focus in the body such as pyorrhoëa (q.v.). Adhesions to the lens are a usual complication. Treatment consists in treating the causative infective organism.

**Irkutsk**: 1. Oblast in SE. Siberia, NW. of Lake Baykal, situated on the central Siberian uplands, and largely covered with coniferous forests. There are large coal, iron ore, gold, salt, and mica deposits, and

vast water-power resources. Engineering, coal- and gold-mining, lumbering, grain growing, and cattle breeding are carried on. The prin. tns are I., Chermkhovo, Angarsk, and Bratsk. It is an area of banishment, with labour camps and great construction projects. Area 302,000 sq. m.; pop. (1956) 1,757,000, mostly Russians (since 17th cent.), also Buryat and Evenki.

2. Cap. of the above, on the R. Angara and the Trans-Siberian Railway (q.v.). It is an important economic centre, with engineering, wood-processing, light and food industries; it has a hydro-electric power station (660,000 kw.), and is the chief transportation centre in E. Siberia. It is the cultural centre of E. Siberia, with a branch of the U.S.S.R. Academy of Sciences and a univ. (founded 1918). Founded in 1652 as a Cossack fort, it became a tn in 1686, and cap. of E. Siberia in 1822. From the late 17th cent. it was the main base for trade with Yakuts, Buryats, Mongolia, and China; from the 1830's it was the administrative centre of the Lena goldfields, and from the 1850's the base of Russian advance into the Far E. Its industrial development dates from the 1930's. It has been a place of banishment since the 18th cent. Pop. (1956) 314,000 (1800, 20,000; 1892, 51,000; 1917, 90,000; 1939, 243,000).

**Irlam**, urb. dist. of Lancs, England, 7½ m. SW. of Manchester, on the Manchester Ship Canal, but still partly agric. It has steel works, soap and margarine factories, engineering works, and tar distilleries. Pop. 15,000.

**Irmin**, Teutonic god of the old Germanic tribes of the Herminones. The huge wooden posts called I. Pillars were raised in his honour and worshipped by the Saxons in their wars with the Christian Gauls. The chief seat of this cult, Irminsal (Westphalia), was destroyed by Charlemagne in 772. 'Irmin's Chariot' was an anct name for the Great Bear.

**Irnerius** (sometimes called the 'Lucerna juris'). It. jurist, b. Bologna early in the 12th cent. He founded a school at Bologna, and at the instance of the Countess Matilda directed his own and his pupil's attention to the *Institutes* and *Code* of Justinian. He appears to have held office under Henry V after 1116, and to have d. under the Emperor Lothar before 1140. He is generally considered the first of the Glossators, and the author of an epitome of the *Novellae* of Justinian called the *Authentica*. *See* monograph by P. Vecchio, 1869, and F. C. Savigny, *Geschichte des römischen Rechts im Mittelalter*, vol. III, 1826-51.

**Iron**, Ralph. *see* SCHREINER, OLIVE.

**Iron Age**, third of the 3 technological ages of man formulated about 1836 by C. J. Thomsen, a Dan. curator, demonstrated stratigraphically by his student Worsaae in the peat-bogs of Denmark, and since generally accepted by all archaeologists. These ages were not everywhere contemporary; thus the I. A. began in Asia Minor c. 1200 BC, in central Europe about 800 BC, in China about 600 BC, in

Britain in the 6th and early 5th cents. BC, and in the Fiji Is. not until an expedition there in the late 19th cent. The economical working of iron, particularly for use in agric. tools and weapons, was a great step forward in civilisation, and it was in fact the chief underlying cause of an urb. revolution from which was to arise an organisation of labour and of foreign trade over a large area, and the beginnings of city life and a political consciousness.

The earliest culture of the Early I. A. in central Europe is named after Hallstatt,

BC; the Early Rom. I. A., c. 0 BC-AD 200; the late Rom. I. A., c. AD. 200-400; and the Germanic I. A., c. AD 500-800. The Viking Period, c. AD 800-1000, is noted for its iron weapons, and notably for axes and swords inlaid with silver.

Further Celtic immigrants to Britain about the middle of the 3rd cent. BC brought much developed cultures, chiefly from the Marne in N. France, named after a type site at *La Tène* ('the Shallows') on Lake Neuchâtel, Switzerland. The various *La Tène* cultures grew from trading



IRKUTSK OBLAST: LAKE BAYKAL

The railway on the lakeside serves Baykal mica mines.

'Soviet Weekly'

an exceptionally rich cemetery in Upper Austria, which is within 40 m. of Noricum, one of the famous iron-mines of antiquity. Relics of both bronze and iron were recovered, and stages in the evolution of the sword in both metals provided a relative chronology. But the Hallstatt civilisation as a whole is exceedingly complex, as may be seen from a study of the various hybrid stocks which reached Britain in the 6th to 5th cents. BC, and comprise a culture known as 'Early Iron Age A.' The vil. sites of All Cannings Cross, Wilts.; Hengistbury Head, Hants; and Scarborough, Yorks, have yielded typical pottery, and there are notable 'camps' or hill cities at the Trundle and Cissbury, Sussex, and Figsbury, Wilts.

It may be noted here that the I. A. of Scandinavia is sometimes considered as 4 main periods: the Celtic I. A., c. 400-0

contacts made between the highly civilised urb. peoples of the Mediterranean and the Hallstatt farming communities N. of the Alps. They used iron extensively for military and household gear, and the metal-smiths were skilled craftsmen as may be seen from such examples of their work in Britain as the Battersea Shield, the Witham Shield, and the Thames Helmet, all in the Brit. Museum. The peoples of the 'Iron Age B' culture, as this is usually called in its wider aspect, were in the main an aristocracy, but the 6 chief groups which can be recognised differ much in their agric., domestic, and military traditions. Among the important sites and relics in Britain are the *murus gallicus* forts of Scotland; the charioteers of Yorks; the wealthy lake vils. of Meare and Glasstonbury with their fine woodwork and textiles; those of the Atlantic tin-traders

and merchants of Cornwall; while the cultures of Wessex have been demonstrated in the brilliant excavation of the gigantic hill-fort of Maiden Castle, Dorset. Other remarkable hill-forts with strong defences of this period are Hambury, Devon, and Cadbury and Ham Hill, Somerset.



IRON HOLLOW CELT  
WITH HANDLE REST  
(Hallstatt)

A third period in the Early I. A. is that dominated by the *Belgic* culture of N. Gaul, which had itself grown by the pressure of the Celts and Germanic peoples of the Lower Rhine on the *Marnian* culture of La Tène. In Britain the Belgae arrived about 75 BC, as adventurers, then later as colonists. They were riverside farming folk, and with their new equipment of heavy wheeled ploughs which dealt effectively with loams and clays, they were enabled to follow up the clearance of woodland and to start an agric. revolution. The same ruler, Diviciacus, held sway both in Gaul and Britain at one period; there was a system of inscribed gold coinage; a flourishing export trade in corn,

cattle and cattle-products, gold, silver, iron, and slaves; and the infiltration of Rom. civilisation secured the import of luxuries in return. The cremation cemeteries of *Aylesford* and *Swarling* in Kent with fine wheel-turned pedestal urns and bronzes represent the sepulchral evidence. On the economic side of this final period of the I. A. is the foundation of states to replace tribal groups, and the estab. of urb. caps.—*Verulamium* (St Albans), *Calleva* (Silchester), and *Camulodunum* (Colchester).

The bibliography is extensive, but the best general statement is Stuart Piggott, *British Prehistory*, 1949, with references. A conspectus and good illustrations are contained in *Later Prehistoric Antiquities*, British Museum, 1953, which also gives a list of references to I. A. sites. See also **ARCHAEOLOGY; BRONZE AGE; PREHISTORY; STONE AGE.**

**Iron and Steel.** Iron (Symbol Fe, atomic number 26, atomic weight 55.85) is the fourth most abundant element on the earth. It is only very rarely found in the free state, and then mostly as meteorites which have come from other worlds than ours. Its more usual occurrence is in combination with oxygen as oxides, or with sulphur as sulphides (pyrites). Only the former are true ores of iron, as the latter is infrequently used as a source of extraction of iron owing to the high sulphur content and difficulty of removal. Iron ore, as mined, contains varying quantities of impurities, such as silica, alumina, lime, sulphur, and phosphorus, which have to be removed, as well as the oxygen, before malleable steel or iron is produced. This is done almost exclusively by heat in the presence of a reducing agent such as coke, charcoal, or other carbonaceous material. Terrestrial iron was known early in the prehistory of Mesopotamia and Asia Minor; iron forging was perhaps discovered in Armenia where there are rich ores. The process had spread to N. Europe by c. 500 BC. It developed into an industry which to-day produces well over 100,000,000 tons of steel annually. Prehistoric man used iron for tools, weapons, domestic and horsegear, and particularly for agric. implements such as hoes and sickles.

The primitive processes of working gave a pasty semi-solid malleable metallic product in one operation. The small pieces of iron, weighing only a pound or two at the most, could be hammered into shape with the tools of the early craftsmen. Owing to its extensive distribution throughout the world, iron manu. was widely carried out. Improvement on the crude forging process, though slow, was definite: larger units were built, more powerful blowing machines were introduced, until about AD 1300–1400 an unexpected result was achieved. Instead of the partly malleable product, a liquid metal flowed from the furnace, which was found, on setting, to be hard and brittle. This substance we now know as pig iron, and the reason it is so hard and brittle is that it contains about 4 per cent of carbon whereas the prior malleable iron

was practically carbon free. The expert ironmaster soon found a way out of the difficulty by a further treatment of the pig iron in a separate furnace and thus there was the beginning of the present-day double process for producing steel or malleable iron. The iron ore, which contains about 30 per cent oxygen, is heated in a blast furnace with coke to produce pig iron, which contains no oxygen but 4 per cent carbon, the balance being iron. The pig iron is then heated in a steel-making furnace to reduce the carbon to from 0.02 to 1.6 per cent carbon, which is the range of steels from very soft to very hard.

**SOURCES OF IRON.** Although iron is widely distributed throughout the crust of the earth, the prin. ores from which it is extracted are comparatively few. Among the more important are (i) Magnetite ( $\text{Fe}_3\text{O}_4$ ), containing 72.4 per cent iron; a black ore which, in line with its name, is very magnetic; (ii) Haematite ( $\text{Fe}_2\text{O}_3$ ), containing 70 per cent iron; its colour varies from bluish-grey to red, and one well-known form is the so-called 'kidney ores' of Cumberland; (iii) Limonite ( $2\text{Fe}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$ ), containing 59.9 per cent iron; its colour varies from various shades of brown to yellow; and (iv) Siderite ( $\text{FeCO}_3$ ), also known as spathic iron ore, contains 48.3 per cent iron; its colour varies from pale yellow to brown and grey.

Pyrites ( $\text{FeS}_2$ ) is not really a source of iron as it contains too much sulphur to allow a profitable extraction of iron from the raw material. It is a mineral which occurs widely and extensively throughout the earth's crust, but its development as a source of iron is a problem for future generations.

**EVOLUTION OF IRON AND STEEL MANUFACTURE.** In the Middle Ages pig iron was produced in primitive blast furnaces using charcoal as fuel, which was burned by an air blast from bellows driven by water wheels. The pig iron was cast into sand beds, allowed to go cold, broken up, and then the second process of conversion to malleable metal was carried out in a separate furnace known as a charcoal refinery. Once again the fuel used was charcoal, made by partial burning of wood with a controlled and limited access of air. The product of the refinery was a semi-solid spongy mass known as charcoal iron or wrought iron, which was removed from the furnace by tongs and hammered into a solid bloom of malleable metal. Later this bloom was reheated in a Chaffery and rolled into billets, bars, and other shapes. During the 17th cent. the growing shortage of wood for conversion to charcoal caused the ironmakers to look elsewhere for a possible source of heat. Coal had been known for several centuries beforehand and it seemed a likely substitute. Early experiments were not successful, but eventually success was obtained by treating coal so as to convert it to coke in the same way as wood has been converted to charcoal. The charcoal charged to the blast furnaces was replaced by coke by Darby in 1760. The

charcoal used in the refinery was also replaced by coke and by long-flaming coal. From this developed the puddling process for production of wrought iron, but again only giving a semi-solid spongy product. The blast furnaces of Darby's day in the late 18th cent. had an output of 10 tons per week, which was considered colossal. Modern blast furnaces, which have been developed from it, have an output up to 1000 tons per day.

The major problems of steelmaking may be classified under 2 headings: (1) heat; (2) refractory material able to resist heat. Iron ore does not react with carbonaceous reducing material until a temp. of over  $700^\circ\text{C}$ . is reached. From this it follows that man could not know iron until he had learned how to make fire, which in an open grate or camp fire reaches a temp. of about  $1000^\circ\text{C}$ . But pure iron does not melt until a temp. of  $1539^\circ\text{C}$ ., and it requires about  $1600^\circ\text{C}$ . to get a proper superheat so that the metal can flow during casting. By burning coal and air at room temp. in an open grate with forced draught it is possible to get about  $1400^\circ\text{C}$ ., which is still short of the melting point of pure iron and accounts for the production of charcoal iron and coke in the semi-solid pasty condition. The fact that the blast furnace gave liquid metal arose from the absorption of 4 per cent carbon by the pure iron. This metal is not malleable and melts at  $1250^\circ\text{C}$ .

Two methods of producing the high temp. necessary to melt pure iron were evolved at roughly the same period: by Bessemer in 1856 and Siemens in 1866. The method perfected by Bessemer was the more remarkable as it consisted simply of blowing cold air through molten pig iron. This not only removed the excess 4 per cent of carbon, but also other undesirable elements such as silicon and manganese, and at the same time increased the temp. of the metal from some  $1350^\circ\text{C}$ . to over  $1600^\circ\text{C}$ . The method used by Siemens is known as the regenerative principle. When coal or wood at room temp. is burned by air at room temp. in an open fire the maximum temp. reached is about  $1000^\circ\text{C}$ . The effect of putting a 'blower' in front of the fire so as to create a good draught and force all the air into close contact with the fuel is well known. By this means temps. up to  $1400^\circ\text{C}$  can be obtained, but this is still not sufficient to melt pure iron. Instead of using air at room temp. Siemens tried out the idea of preheating the air, so that by starting off at a higher temp. he expected to get a higher final temp. in the furnace. His early experiments were unsuccessful until he combined the initial idea with another one—converting coal into a combustible gas by burning it with a limited air supply in a gas producer. He then preheated both this producer gas and the air for combustion to over  $1250^\circ\text{C}$ . and thus was able to start off work with an initial temp. as high as can be obtained in an open grate. The final temp. reached after combustion was thus in the region of  $1750^\circ\text{C}$ . The method of preheating the

air and gas is known as the regenerative principle. The hot gases from the furnace pass through 2 chambers, known as regenerators, in which brickwork is loosely stacked and to which the waste gases give up their excess heat. On reversing the furnace the incoming air and gas pass through these 2 chambers and increase their temp. to over 1000° C. before being burned in the furnace. On passing out at the far end the waste gases reheat 2 corresponding chambers at that end. The Siemens regenerative furnace has

more usual, after storing in a mixer; and by charging hot steel ingots to the reheating furnaces for rolling.

*Production of steel from pig iron.* Essentially iron ore is iron plus a considerable quantity of oxygen; steel is iron plus a little carbon (0.04-1.5 per cent), so the fundamental action of steel-making is to remove much oxygen from ore and replace it with a little carbon. This is done in a preliminary stage of converting coal to coke, a primary stage of converting iron ore to pig iron in blast



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BLAST FURNACE FOR THE PRODUCTION OF PIG IRON

proved by far the most successful way of producing steel economically. Electric arc and electric induction furnaces have become widely used for special types of steel. The temps. possible in these 2 types are well in excess of the melting point of pure iron at 1539° C.

The development of the integrated plant for the production of steel represents the most important recent advance. The principle is to have the coke ovens for production of coke, the blast furnaces for the production of pig iron, the steelmaking plant for the production of steel, and the rolling mills for fabricating to shape, all on the same site. This makes for considerable fuel economy, as large quantities of heating gases are evolved from the coke ovens and blast furnaces as a by-product. Further heat is conserved by charging molten pig iron to the steelmaking plant direct from the blast furnaces or, as is

furnaces, and a secondary step of steel-making in Bessemer, open hearth, or electric furnaces.

*Production of coke.* Suitable types of coal are heated in coke ovens out of contact with air, which converts the coal into coke and evolves large quantities of a combustible gas known as 'coke oven gas.' By-products such as ammonium sulphate, tar, and crude benzol are extracted from the gas which is then passed to the plant for use as a means of heating.

*Production of pig iron.* Pig iron is produced in vertical shaft furnaces; iron ore, limestone, and coke being charged at the top and air blown in at the base. An account of the process as carried out in 1531 says: 'There are five men who keep the fire to melt the ore, having 12 pence per day each. And there are four men at the Bellows whereof three blows at a time and one of them stoude voyde to refresh



the others, for they bloweth six or seven hours at every gadde that is melting, and thus they make two gaddes a day each weighing 1 cwt.' In 1760 Darby replaced the charcoal which had previously been used as fuel with coke. Outputs by this improvement were increased to 1½ tons per day. In modern blast furnace practice outputs of 1000 tons per day are known.

Iron ore as mined is not pure iron and oxygen; it contains varying amounts of silica, lime, alumina, sulphur, phosphorus, and other extraneous materials which have to be eliminated. Much of this is done in the production of pig iron in the blast furnace, but there is an additional pick up of about 4 per cent carbon. The effect of this is to produce a hard, brittle product known as pig iron which is subsequently treated to produce steel, cast iron, etc.

A modern blast furnace is a circular stack about 100 ft high and with a maximum diameter of 18 to 26 ft. There is a skip hoist for taking ore, limestone, and coke from the bottom for charging through a bell and cone at the top level. Air blast is supplied at the base through tuyères from a powerful blowing engine, and it is preheated in Cowper stoves, the idea of hot blast being first developed by Neilson in 1828. The iron ore, limestone, and coke while descending through the furnace meet the ascending current of hot air which burns the coke, converts the ore to pig iron, and allows the impurities to settle as a liquid slag floating on top of molten pig iron. At regular intervals the slag is tapped off through a slag notch and discarded, while the pig iron is tapped through a separate iron notch and either cast into pig beds or transferred while still molten to a mixer where it is retained until required in the steelworks.

*Iron castings.* The pig iron as originally produced from the blast furnace is melted in special air or cupola furnaces, where its carbon content is adjusted to the required amount, and other constituents such as silicon, manganese, sulphur, and phosphorus regulated to the desired specification. The cupola furnace is similar in construction to a blast furnace, but is much smaller. It is charged at the top with coke and pig iron. A blast of air forced through tuyères near the base causes the coke to burn, and develops sufficient heat to melt the iron, which is tapped off through a metal spout into a ladle, from which it is poured into the moulds prepared to the shape of the casting required. Owing to its ease of melting and fluidity when melted, the iron can be formed into intricate shapes in various sizes weighing from a few pounds to upwards of 100 tons. The various types of castings require different compositions of metal according to the use to which they are to be put. For engineering purposes the cast iron must be strong but not too brittle, while for ornamental purposes the main requirement is fluidity in order that the metal may take a sharp impression of the intricate shapes. In other cases it is important that the finished

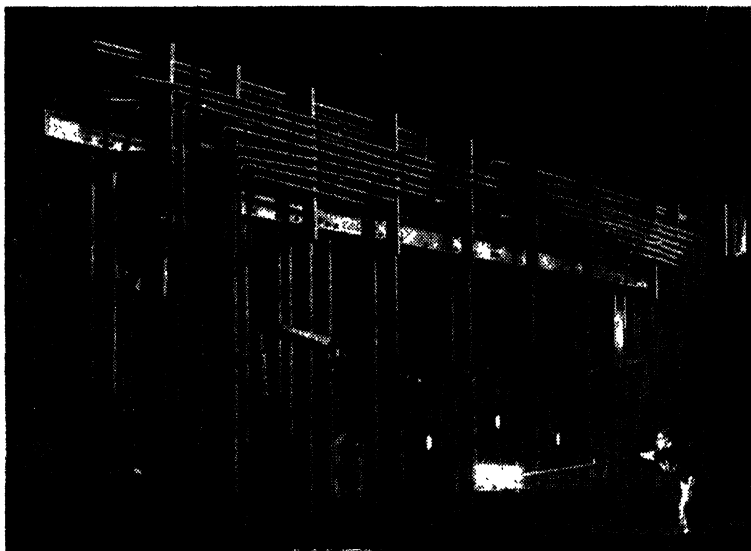
casting should be easily machined. For engine cylinders the iron must have strength, hard-wearing surface, and easy casting properties owing to the thin sections required in certain places. For conversion to malleable castings the iron should be low in silicon, giving a white fracture. The castings are malleablised by annealing in iron ore. Additions of about 0.05 per cent of magnesium or cerium or both to cast iron renders it tough and ductile even without subsequent annealing, the product being known as spheroidal graphite cast iron or nodular cast iron. High duty cast irons are produced from specially refined pig iron, and may additionally contain alloying additions such as nickel, chromium, molybdenum, vanadium, etc. Cast-iron pipes may be made by centrifugal casting. In making chill castings such as rolls, the surface of the main body is rendered very hard by casting the metal into a cast iron mould instead of the usual moulding sand.

*Production of wrought iron.* Although the amount of wrought iron produced to-day is comparatively insignificant, yet it was the most important process for converting the hard brittle pig iron to a malleable product until steel manuf. by the Bessemer and open hearth processes became well estab. just prior to the start of the present cent. In making malleable metal from pig iron the essential process is to remove the excess carbon, silicon, manganese, sulphur, and phosphorus. This is carried out by oxidation and the conversion of the oxides thus formed into a fluid slag which can be separated from the metallic product. The difference between wrought iron and steel is that the former is produced in a semi-solid pasty condition much intermixed with slag, while the latter is made in a completely liquid form and the separation of slag from it is virtually complete. Wrought iron is made by the puddling process. About 5 cwt. of cold pig iron are charged into the furnace and melted down in a lining which consists primarily of iron oxide. On completion of melting the puddler lowers his damper which brings the bath up on the boil and much of the slag formed is boiled over the sill plate into a buggy. Later the charge begins to set back, boiling over ceases, and then 'puddling' commences. This is one of the most onerous jobs carried out close to a furnace at high heat for over half an hour that has ever fallen to the lot of man. The pasty white-hot metal is divided into 4 by pushing a rod through it, then each of the 4 pieces is turned and moved about in the furnace until it has reached a suitable state of malleability. The pieces, weighing about 80 to 100 lb., are removed separately, and compressed by a shingling hammer to remove excess slag and formed into a suitable shape for further reheating and rolling.

*PRODUCTION OF STEEL.* Steel is made by a variety of processes of which the most important are (1) Crucible; (2) Bessemer; (3) Open Hearth; (4) Electric Furnace. Except in the first case there is a further

subdiv. into acid and basic processes. As the difference between acid and basic is the same in all 3 processes, it may be briefly dealt with first. In an acid furnace the refractory lining, on which the charge of pig iron and scrap steel is melted, is made of silica brick on top of which is fritted silica sand. In a basic furnace the furnace bottom is lined with magnesite brick on top of which dolomite is rammed. Although the nature of the refractory used for the bottom is the only essential difference, yet it has a very considerable effect

*The Bessemer process.* Bessemer took out his early patents in 1856, and within a few years the process was being operated successfully on a commercial scale. In this process, molten pig iron is converted into steel by blowing air through a Bessemer converter. The difficulties to be overcome in the early days arose from the fact that (i) it is necessary to blow vigorously through the molten metal right to its very core; (ii) blowing must only take place when the whole of the metal is in the converter; (iii) it must be possible to stop



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STEEL-MAKING FURNACE: SIEMENS OPEN HEARTH PROCESS

in removing impurities. With an acid bottom it is impossible to remove any sulphur or phosphorus; in a basic furnace their removal is possible. Acid steel is still made for special qualities, but the present tendency is to change over more and more to the basic process.

*Crucible steel.* The crucible steel process was invented by Huntsman in 1740. It is still used, more particularly in the Sheffield area, for making high-grade steels. As it is purely a melting process, with no refining, it is necessary to charge pure materials. The crucible furnace is oval in shape and takes 2 pots side by side, with room around them for coke. When the crucible is hot enough, a charge of 50 lb. of blister steel is emptied through a sheet-iron funnel and the cover put on. On melting, the charge is 'killed' with ferro-manganese and aluminium and poured into a mould.

and restart blowing at will. The converter is pear-shaped, lined with refractory, containing holes in its base through which air is forced at a pressure of about 25 lb. per sq. in. In operation the converter is turned down to the horizontal and a charge of molten pig iron poured in; the air blast is then turned on and the converter turned up to the vertical position. The air, in passing through the metal, removes carbon, manganese, silicon, and sulphur, and at the same time increases the heat from about 1250° C. as charged to 1600° C. During blowing there is a violent evolution of sparks from the mouth of the converter, and the change in composition of the metal can be fixed by the appearance of the flame. When the melter judges that the metal is correct, the converter is turned down, the blast switched off, and the finished charge poured into a ladle before teeming into

moulds. The Bessemer process was not widely used in this country but had a very considerable development on the Continent. Within recent years 2 large basic Bessemer plants have been erected in this country, with satisfactory results.

*The Siemens-Martin open hearth process.* The Siemens open hearth process was perfected by Sir W. Siemens in 1866, and the first commercial plant for its production was erected at Landore, S. Wales, in the following year. The original furnace was about 1 ton capacity, and had a potential output of about 1000 tons per year. To-day about 100,000,000 tons are made annually by this process. Cold pig iron and scrap steel are charged into the hearth of the furnace and melted down by a hot flame produced by the combustion of preheated air. This preheating is done on what is known as the regenerating principle. The waste gases coming out from one end of the furnace pass through loosely stacked brickwork to which they give up their heat. Every half-hour the direction of flow of the gases is reversed and the incoming air and gas are preheated to a high temp. (about 1250° C.). In this way flame temps. of 1750° C. are obtained when the 2 are combusted in the hearth of the furnace. The steel is thus heated to a temp. of 1600° C., which is the maximum generally required for low carbon steels. After clear melting there is a quantity of molten metal covered by a slag containing the impurities. The remaining impurities in the metal are removed by feeding in iron ore and scale or limestone until a suitable composition of the metal is obtained. This is determined by taking samples from the bath and testing them by chemical analysis. When the composition is considered satisfactory a tap-hole is opened at the back of the furnace and the molten metal and slag is allowed to flow out into ladles. The metal is deoxidised to suitable condition by additions of ferro-manganese, ferro-silicon, and/or aluminium. From these it is teemed into moulds. The pig iron used varies from 20 to 80 per cent, according to the required composition of the steel, an average figure being about 50 per cent of pig iron and scrap metal.

*Electric furnace steels.* Electric furnaces may be classified into 2 types: (1) arc furnaces; (2) induction furnaces. Of these the former is much more widely used. In the arc furnace heat is generated by a spark between the carbon electrodes and the charge of metal. The temp. of the arc itself is well over 3000° C., so that the local heat is very intense. Owing to the high cost of electric current required, the electric arc process is more generally worked with a charge of 100 per cent of scrap steel, in order to cheapen the process. The charge is melted down in a manner similar to that in the open hearth process. It is further refined as before by additions of iron ore and limestone. Finally the metal is cast and teemed as before. The electric furnace is used in the manuf. of high-grade steels, the basic furnace being more widely used as it

has considerable advantages in removing sulphur and phosphorus and producing 'Killed' steel comparatively free from oxide inclusions. It is improbable that the electric furnace will be able to compete with the Bessemer and open hearth processes in the manuf. of steel for constructional purposes and the more common uses, except under special conditions. It will, however, prove a serious rival and will probably finally oust the older processes of steel making in high-quality grades.

The electric induction furnace has been further advantageous in replacing the older crucible steel process. As in the crucible furnace there is no refining, and pure metal is charged into the crucible and melted down by a high frequency induction current which generates terrific heat in the metal itself, and causes it to melt rapidly. At the same time the metal is stirred up so as to give very uniform composition.

*Steel castings.* These can be made from open hearth furnaces, both acid and basic, from small converters, from crucibles, and from the electric furnace. For general foundry work it is more common to find a small open hearth or Tropenas converter, fed with molten iron from a cupola. It is important to see that the metal is thoroughly killed during the casting operation, otherwise difficulties are likely to arise due to the formation of blow-holes inside the casting. For steel castings the moulds used may be classified either as 'green sand' or 'dry sand,' the former being used for light castings and the latter for heavier castings. 'Green sand' moulds is the general term for those which have not been dried previous to the metal being poured in. 'Dry sand' moulds are made much as above but are faced with moulder's composition and give a clear skin.

*Straight carbon steels.* The properties of steel are considerably altered by varying the carbon content. In general, increasing carbon content from 0.04 per cent to 1.5 per cent gives harder steels with a higher tensile strength but decreasing ductility and machinability. Some typical ranges and uses are indicated in the following table:

Carbon	Name	Uses
0.04-0.08	Dead mild	Sheets, tinplates, pipes, plates
0.08-0.25	Mild	Structural steels, reinforcing rods
0.20-0.45	Carbon	Rail steels, axles
0.45-0.65	Medium carbon	Holding-down bolts
0.65-0.9	High carbon	Drills and other tools
0.9-1.5	Ultra High carbon	Chisels, turning tools, files, razors, etc.

Straight carbon steel can be hardened by quenching in water from a suitable temp. between 750° and 950° C. according to carbon content. This hardening is accompanied by an embrittling effect

which can be minimised by tempering the quenching steel to suitable temps. below 700° C. The degree of tempering is controlled by the time and temp. at which the tempering operation is carried out.

**Alloy steels.** Steel has found a very extensive use in industry and commerce due to the fact that it is possible to produce such a wide range of properties by varying the carbon content and heat treatment. There are certain difficulties with straight carbon steels which have been overcome by the introduction of the so-called 'alloy steels,' i.e. steels containing considerable percentages of alloying elements such as nickel, chromium, etc. The number of such steels on the market to-day is well into the thousands, but efforts were made during the recent war years to reduce the numbers and so simplify production, and yet retain the valuable properties which such steels have conferred on them by the use of alloying additions.

**Nickel.** Nickel steels, owing to their strength, are widely used for stressed parts. With carbon around 0.15 per cent and nickel 3-5 per cent, the so-called 'case-hardened steels' find a wide application in heavily stressed parts requiring a very hard outer surface and a tough core. With a somewhat higher carbon content and similar nickel, the steels have many uses in engineering where both strength and toughness are required. High nickel steels containing 25-40 per cent nickel are used for their resistance to corrosion, special electrical properties, and due to the fact they are practically non-magnetic.

**Chromium.** Chrome steels are used because they produce greater strength and hardness. Additions of from 0.5 to 2.5 per cent chromium are typical. Such steels are used for tyres and springs. The addition of 12-20 per cent chromium produces the well-known stainless steels, first developed by Harry Brearley about 1913.

**Chrome-nickel.** It is more usual to find both chromium and nickel, as the combination makes for many advantages in hardness and strength combined with ease of heat treatment, to produce suitable properties. In the stainless steel series, the so-called 18/8 (18 per cent chromium, 8 per cent nickel) is widely used to-day, as they have the widest range of corrosion resistant properties. They are also satisfactory as heat-resistant steels. They have a wide use, but perhaps the best known is for table knives, where they have been a boon to the harassed housewife.

**Vanadium.** Vanadium is generally present in alloy steels in relatively small amounts, less than 1 per cent, and more often less than 0.25 per cent, but this has an important effect in increasing the toughness of the steel. It has perhaps its widest use in chrome-vanadium steels, which are used because of their extreme strength and toughness. A common analysis is 1 per cent chromium and 0.15 per cent vanadium. It is also added in small amounts to produce a high degree of hardness in tool steels, armour-piercing projectiles, rock drills, etc. Vanadium

steel castings are noted for their high elastic properties, strength, and toughness.

**Molybdenum.** Molybdenum is present in steels also in quantities under 1 per cent, and in association with the more common alloying elements, such as nickel and chromium. It has got a marked effect in increasing the strength both at room and elevated temps., and is an important addition to remove a difficulty known as temper-brittleness. There is a fairly wide range of molybdenum steels, each type having its own special application. Molybdenum iron castings are used where a hard-wearing surface is required, while it has also been found advantageous in chilled iron rolls.

**Manganese.** Although manganese is present in all straight carbon steels to an extent of 0.3-1.5 per cent, it is not considered as an alloying addition. The high manganese steels containing about 12 per cent are true alloy steels. They were put on the market by Sir Robert Hadfield in 1882, and have found many uses due to their hardness and high resistance to wear. They are quite commonly used for railway crossing points and for crushing machinery. In war-time they were used for steel helmets. It is a non-magnetic steel.

**Silicon.** High silicon steels containing 0.5-5.0 per cent have important electrical properties—a high permeability with low hysteresis and eddy current losses. They are used in electrical transformers. Steels containing from 14 to 20 per cent have a high resistance to corrosion by acids which enables them to be used for containing vessels. A silicon-manganese steel has found extensive uses for general engineering purposes and armour plate.

**Tungsten.** This element is used in high-speed tool steels and in magnet steels. Its effect in high-speed tool steels is to retain the cutting edge while allowing the steel to reach a red heat. Ordinary carbon tool steels, which may be harder initially, are tempered under similar conditions and lose their hardness. Modern high-speed tool steels contain 15-20 per cent tungsten.

Steels containing from 5 to 6 per cent have good magnetic properties and are used for magnets of generators, magnetos, etc.

**Cobalt.** Cobalt steels containing from 25 to 35 per cent cobalt give a magnet steel superior to the tungsten magnet steels, and are also used for service at high temps.

**Copper.** About 0.5 per cent copper is said to be beneficial in increasing the corrosion resistance of ordinary mild carbon steels.

**Lead.** About 0.25 per cent lead is incorporated with certain steels to improve their machinability. Lead does not alloy with steel and it exists as dispersed globules throughout the metal. A typical steel of this class is known as 'Ledloy.'

**Sulphur.** Although sulphur above 0.08 per cent is generally considered bad in steel, making it hot-short, yet up to 0.3 per cent is added in order to improve machinability.

See R. Jenkins, *The Early History of Steel Making in England*, 1923, and *Iron-making in the Forest of Dean*, 1926; T. S. Ashton, *Iron and Steel in the Industrial Revolution*, 1924; R. A. Hadfield, *Faraday and his Metallurgical Researches*, 1931; A. Allison, *Outline of Steel and Iron*, 1936; J. B. Fortune and P. B. Mann, *The Story of Iron*, 1948; J. Dearden, *Iron and Steel To-day*, 1956; J. M. Camps and C. B. Francis, *The Making, Shaping, and Treating of Steel* (7th ed.), 1957.

**Iron Cross**, see ORDERS OF KNIGHTHOOD (GERMANY.)

**Iron Gates**, narrow passage in the course of the Danube (q.v.) on the border between Yugoslavia and Rumania. It is a defile between the S. and of the Carpathians (q.v.) and the Miroch range of the Balkan Mts (q.v.). It was made navigable by the construction of the Síp Canal, 1890-6. Length 2 m., fall about 16 ft.

**Iron Losses** in transformers are due to hysteresis and eddy currents in the core. When the primary current reverses, the magnetic flux reverses, but the increasing and decreasing flux values during a cycle of the alternating current do not follow the same curve (see INDUCTION, MAGNETIC). The 'hysteresis loop' formed by the flux curves represents loss of energy, which goes into heating of the core. Eddy currents (q.v.) induced in the core by the current also represent loss by heating. When the transformer is on open circuit, no current flows in the second winding; a wattmeter in the primary will give a reading representing the power lost by magnetising the core—the iron loss, neglecting the small copper loss in the h.v. primary.

**Iron Lung**, see AEROTHERAPEUTICS.

**Iron Mask**, *The Man in the*, mysterious figure of great romantic interest in Fr. hist. He was a political prisoner in the reign of Louis XIV who, when travelling from one prison to another, always wore a mask. He finally *d.* in the Bastille in 1703. The mystery of his identity still remains an historical problem.

Etienne du Junca (*d.* 1706), lieutenant of the Bastille, recorded in his official journals that on 18 Sept. 1698 Saint-Mars, the new governor, arrived at the prison from the Ile Ste Marguerite, bringing with him in a litter a prisoner whom he had formerly held in custody at Pignerol. This prisoner always wore a black velvet (not iron) mask, and his name was never told. He *d.* on 19 May 1703, and was buried in the par. cemetery of Saint Paul, his name being registered as 'M. de Marchiel.' The name actually recorded in the register was 'Marchioly.'

Stories spread about the prisoner even during his lifetime, and in 1745 and 1746 it was asserted in *Mémoires secrets pour servir à l'histoire de Perse* that he was the Duke of Vermandois, the illegitimate son of Louis XIV and Mlle de la Vallière, and was imprisoned for life for having assaulted the dauphin. Public interest was further aroused by Mouhy's romance, *L'Homme au masque de fer*, and by the

writings of Voltaire on the subject. Voltaire, under the head 'Ana' in *Questions sur l'encyclopédie*, asserted that the 'Mask' was a bastard elder brother of Louis XIV and the son of Anne of Austria and Cardinal Mazarin. His theory, with romantic additions, was adapted by Dumas in his novel.

A much more feasible conjecture, supplied by Lord Acton and Funck-Brentano, is that the 'Mask' was Count Mattioli (*b.* 1640), a minister of the Duke of Mantua. He negotiated with Louis for the surrender of Casale, but the Fr. king, discovering that his dealings were treacherous, had him kidnapped (1679) and conveyed to Pignerol. This would appear to be the most likely answer to the mystery, though a number of vital points still remain unanswered.

The mysterious prisoner has also been identified with Eustache Dauger, imprisoned at Pignerol in July 1669. Andrew Lang, in *The Vale's Tragedy*, 1903, identified this Dauger with one Martin, the valet of Roux de Marsilly, a Huguenot intriguer in England. Barnes (*The Man of the Mask*, 1908) found Lang's theory untenable, and suggested that Dauger was really James de la Cloche, the natural son of Charles II. Lang proved subsequently that James de la Cloche was identical with 'Prince' James Stuarto, who *d.* in Aug. 1669 at Naples. It has also been suggested that the prisoner was Fouquier (q.v.) but the historical evidence does not support this theory.

As well as the works already mentioned, see J. Delort, *Histoire de l'homme au masque de fer*, 1825, and *Histoire de la détention des philosophes*, 1829 (which contains the correspondence between Saint-Mars and Louvois); M. Topin, *L'homme au masque de fer*, 1870; T. Jung, *La vérité sur le masque de fer*, 1873; F. Funck-Brentano, *Légendes et archives de la Bastille*, 1898; F. Laloy, *Qui était le masque de fer?*, 1931.

**Ironbark-tree**, popular name applied to sev. species of *Eucalyptus* for a very obvious reason. *E. resinifera*, the red-gum tree, receives the name most often; it attains a height of 150 to 200 ft in Australia, and is noted for its hard bark, durable wood, and the gum which it exudes.

**Ironclads**, originally wooden ships protected by iron plates as used in 1782 at the siege of Gibraltar. The French used them in the Crimean War, and at that time built 4 iron-plated line-of-battle ships. In 1860 Britain built the *Warrior*, an iron steam battleship, with 4-in. plates.

**Ironmongers' Company**, one of the twelve greater livery companies (q.v.) of the City of London, tenth in order of seniority. It was in existence as the 'Ferrooners' guild in 1300. The I. C. received a grant of Arms, 1455, and was incorporated by royal charter, 1463. It exercised control over the iron trade. Sir Christopher Draper (Master of the company for eight years) was Lord Mayor in 1566, and it is thought that the record of his pageant provides the first detailed

account of an organised and regular Lord Mayor's Show. The first hall in Fenchurch Street was acquired in 1457, rebuilt in 1587 and in 1751, and was destroyed by enemy aircraft on 7 July 1917. This site was abandoned and the hall rebuilt in 1925 on the site of Shaftesbury House, in Aldersgate Street. The I. C. devotes much of its income to charitable purposes and as trustee administers many charities.

**Ironside, Sir William Edmund** (1880- ), 1st **Baron**, soldier. Was in the Brit. secret service in Ger. SW. Africa during the Herero campaign, receiving the Ger. service medal for his good offices. He was appointed to command the Brit. expeditionary force sent out to Archangel during the latter part of the First World War. His conduct of the operations against the Bolshevik forces concentrated along the Dwina showed generalship of a high order. Commanded the Ismid Force, 1920; N. Persian Force, 1921; Commander, Meerut Dist., India, 1928-31; Colonel Commandant, Royal Artillery, 1932-46; Governor and Commander-in-Chief, Gibraltar, 1938-9; Inspector-General of Overseas Forces, 1939; Chief of the Imperial General Staff, 1939-40; Commander-in-Chief, Home Forces, 1940; field marshal, 1940. He wrote *Tannenberg: the First Thirty Days in East Prussia, 1925, and Archangel, 1918-19, 1953*.

**Ironside**, nickname given to a man, particularly a soldier, who displayed great bravery. Edmund II, King of England, appears to have been the first in Eng. hist. to receive the name. It was applied to Cromwell (q.v.), and to his cavalry, those 'God-fearing men,' whom he trained to iron discipline. They were the chief means of the parl. victories in the field.

**Ironton**, city, co. seat of Lawrence co., Ohio, U.S.A., on the Ohio R. (bridged) near Ashland, Kentucky. It occupies a central position in a dist. abounding in bituminous coal, limestone, and fruit. Pop. 16,300.

**Ironville**, eccles. par. of Derbyshire and Notts, England, 3 m. SE. of Alfreton. Pop. 3000.

**Ironwood**, name given to the wood of many different trees on account of its hardness and durability; it is applied to some 52 different genera of trees. A good timber-tree of India is *Mesua ferrea*, the Nagas or I., family Guttiferae. *Olea laurifolia*, black I., and *Todalia lanceolata*, white I., are found in S. Africa.

**Ironwork**. Iron, like bronze, has been used for casting (q.v.), but the purest use of iron in decorative art is to be found in wrought I. Since early days iron has been used for weapons of war, but, owing to the effect of rust on iron, little early I. is now left to us. Iron appears to have been used by the anc. Egyptians at an early date, but was regarded as a precious metal; from Assyria and Babylonia comparatively few objects made of iron have survived. The Hebrews used iron considerably, and the Phoenicians made vessels of iron with which they traded. Pliny mentions Grecian iron statues,

while Plutarch writes of a polished iron helmet which shone blue like silver. We know from writings that the Greeks fully appreciated the beauty of iron and knew about the casting, forging, welding, embossing, tempering, polishing, and inlaying of iron. They used iron for such things as chariots, agric. implements, and in shipbuilding, while in Sparta coins and jewellery were often made of iron. The Romans continued with I.; they used the metal for armour, window-bars, and grilles. Barbaric races used iron before they were conquered by the Romans, and continued to use it with greater success than their conquerors. Up to the 14th cent. I. was the work of a smith, and he made and decorated such things as grilles, door decorations, and hinges. During the 14th cent. a change came over I. The smith now began to work the iron when cold, using file and saw, chisel and vice, whilst sheet iron also was cut and hammered into patterns. Thus came into being the armourer and locksmith, who used heat for working the iron only in the preliminary stages, and who were capable of carving a statuette out of a solid lump of iron. This change over I. derived from the E., and designs often more suited to wood and stone were carried out in iron. The Fr. iron-workers produced after this time the best I., their output being both beautiful in design and delicate in finish. During the cents. that followed iron was used for such things as locks, door handles, screens, firebacks, knockers, grilles, gates, and railings; and the designs used in the work included scrolls, rosettes, leaves, flower patterns (particularly the passion flower), and heraldic devices. See METALWORK. See also C. Foulkes, *Decorative Ironwork*, 1913; J. S. Gardner, *Ironwork*, 1927-30; J. A. R. Stevenson, *Din of a Smithy*, 1932.

**Irony** (Gk *eirōneia*, 'dissimulation') is the use of words to convey a meaning opposite to their literal sense. Most commonly it gives censure under cover of praise, and is often used colloquially, as in 'You're a fine one!' An example from Shakespeare is:

'A trim exploit, a manly enterprise  
To conjure tears up in a poor maid's eyes!'

**Socratic irony**, named from the tactics employed by Socrates in his famous dialogues, means the feigning of ignorance in an argument in order to lead on and perplex an opponent.

**Dramatic irony** occurs when the audience in a theatre perceive in some words of the dialogue an underlying significance which is not apparent to the actors.

See also FIGURE OF SPEECH.

**Iroquois**, name given by the French to one of the great confederations of the N. Amer. Indians possessing the highest form of governmental organisation of any aboriginal tribes N. of Mexico. The league was originally composed of 5 tribes, the Mohawk, Oneida, Onondaga, Seneca, and Cayuga, called the 'Five Nations,'

and dating from the 16th cent., when it was led by Hiawatha and Dekanawida. About 1720 the Tuscaroras were admitted to the league, which was henceforth known as the 'Six Nations.' They numbered at that time about 12,000. Their original home seems to have been round the upper reaches of the R. St Lawrence, from which they moved S.-westwards and occupied the greater part of Upper Canada, the whole of New York state, and a large part of Pennsylvania, Ohio, and Michigan. A section of them moved S. to the Carolinas. They were equipped with guns by the Dutch and dominated many other tribes. In the border warfare with the French, the I. always sided with the English, while their bitter enemies, the Algonquins, fought for the French; they also, with the exception of the Oneidas, fought for the English in the Amer. War of Independence. The surviving Iroquoian stock number about 7000, mainly in Canada and New York state. They were studied by the Amer. ethnologist L. H. Morgan (q.v.). See L. H. Morgan, *League of the Ho-de-no-sau-nee or Iroquois*, 1901; C. Wissler, *The American Indian*, 1938; F. G. Spock, *The Iroquois*, 1945.

**Iroquois Language**, see NORTH AMERICAN NATIVE LANGUAGES.

**Irradiation**, in physics and medicine, exposure to radiation, usually infra-red, ultra-violet, or X-rays. Also used to describe bombardment by atomic particles, e.g. electrons, protons, neutrons. I. is also the name given to a particular optical illusion. When white objects or objects of a very bright colour are seen on a dark ground they appear larger than they really are. Thus a white square on a black ground seems larger than an exactly equal black square on a white ground. The phenomenon differs very much in different people and even in the same person on different days, and is probably due to a spreading of the excitation of the nerve cells in the retina.

**Irrational Numbers**, see SURDS.

**Irrawaddy**, see IRAWADDI.

**Irradentia**, It. patriotic and political society which was particularly active immediately after 1878, when it had for its avowed object the liberation from foreign rule of all ters. outside the boundaries of Italy, in which, it was claimed (sometimes wrongly), Italian was universal, i.e. S. Tyrol (Trentino), Görz, Istria, Trieste, Tessino, Nice, Corsica, Malta. It waned in importance after the Fr. occupation of Tunis in 1881, when Italy formed the Triple Alliance with Germany and Austria.

**Irrefragabilis**, Doctor, see ALEXANDER OF HALES.

**Irrigation** (Lat. *in* and *rigare*, to water) is the artificial application of water to land, as contrasted with watering by manual labour. I. is of great antiquity, as is shown by many I. works in India, Egypt, and China. (See also IRAQ.) No trace of scientific I. is found in the sculptures and paintings of ant. Egypt, but in works of as early a date as 2000 bc the practice of baling up water is represented.

Among the simpler forms of water-raising machinery the following may be mentioned: a pole with a bucket at one end of a crossbeam and a counterpoise at the other (known in India as a 'denkil', or 'paecottah,' in Egypt as a 'shadoof'), largely used in the Nile dist.; rude water-wheel, consisting of earthen pots on an endless chain which runs round the wheel, is termed a 'sakya' in Egypt and a 'harak' in N. India. By means of this a pair of oxen can raise water as far as 18 ft. and keep from 5 to 12 ac. irrigated. The 'churras' of India is a large leather bag, suspended from a rope which passes over a pulley and is raised by a pair of bullocks which go up and down a slope equal in length to the depth of the well. I., which is effected by means of canals, naturally depends on the discharge of the riv. in connection. When the riv. varies very much in vol., being very low in the dry season and flooded in the wet, a complete control of the water is necessary for the engineers, and the canal is therefore very costly. Such is the system on the Cuttack Canal, in connection with the Mahanadi R. The canals of Lombardy, on the other hand, are much less costly, as there is no great variation in the rivs, on which they depend, the Ticino and Adda, owing to the restraining influence of Lakes Maggiore and Como. The canal system of N. India contains works of hydraulic engineering unsurpassed in any country. In the S. of India I. is always required for the rice and sugar-cane crops, though maize and millet can be grown without any such aid. Generally speaking, the other dists. of India can manage without I. in good years. When most of the rain-watered lands of the U.S.A. had been taken up by settlers, the problem of the so-called arid lands came into prominence. There were vast areas in the Middle and Far W. states, and in some parts of the S. states, deficient in water. Companies were formed solely for I. purposes and to fix services to intending settlers, and under the Reclamation Act of 1902 the U.S. Gov. set aside a sum from the sale of public lands to finance great I. projects. Water rights were then sold to the settlers. In many places enormous dams have been built, and these, in turn, have proved valuable, because of hydro-electric power. To-day the U.S.A. ranks third in the irrigation countries of the world: the Indian peninsula has about 80 million ac.; China about 50 millions, and the U.S.A. over 26 millions. In Egypt I. works have been carried out on a very large scale; the delta formed by joining Cairo, Rosetta, and Damietta is intersected by many channels, and much benefit has resulted. Lower Egypt has been irrigated by a dam constructed at Assiut in 1902, which, however, failed in very dry seasons. The difficulty was partly met by raising the height of the barrage so as to hold back the waters, but as further areas came into cultivation it became necessary to construct a feeding lake. This was accomplished by constructing the Aswan (q.v.) Dam at a cost of

£3,000,000 and thus creating a reserve of 5000 million tons of water. The masonry dam at Alicante on the Monegre R. dates from 1759, and is said to have a capacity of 130 million cub. ft. of water. In Italy, Spain, and in the S. of France I. is extensively carried on. The newly constructed Hume Reservoir at the junction of the Murray and Mitta Mitta R.s will eventually store 2,500,000 cub. ft. of water, which runs off a catchment area of 6000 sq. m. of mountainous country on the border of Victoria and New S. Wales (see MURRAY RIVER). Experience has shown that for successful I. a thorough system of drainage in conjunction therewith is a necessity.

in which the same water is used many times. (3) Subterraneous I., in which the water is drawn up through the soil to the surface. This is applicable only to level surfaces. (4) Warping I., in which the water is allowed to stand on the land until it has deposited the mud, etc., contained in it. The proper management of water meadows requires great care and skill. There must be neither too much nor too little water; the flow must be regulated with exactitude, etc.

*Irrigation problems of the British Commonwealth.* It was estimated by S. F. Harris (*Soil Alkali*, New York, 1920) that in 1920 about 100,000,000 ac., or 7 per cent



*From 'In Lotus Land' by H. G. Ponting*

#### IRRIGATION IN JAPAN

Beyond the tea pickers can be seen the small fields from which the barley crop has been harvested and which are flooded for the reception of the rice shoots.

This principle was overlooked at first in modern works, and the complete saturation of some dists. in consequence had a prejudicial effect on their fertility. Generally speaking, the water used in I. not only supplies the moisture so necessary for vegetation, but fertilises the soil by furnishing such mineral constituents as salts of potash and soda, sulphates of lime, soluble silica, etc. In proportion as the water is rich in these, the effect on the soils is similar to that produced by a dressing of bone-manure. Sewage water is unquestionably even more valuable for irrigating purposes than ordinary water, owing to the large amount of putrefied animal and vegetable matter contained therein. The drainage of many tns is thus turned to a profitable use at the present time. Various systems of I. are used to suit the special requirements of the case, one of the following being generally used in England: (1) Bedwork I.; this is the most effective system, but is also the most costly. (2) Catchwork I.,

of the total area of the earth's surface under cultivation, was farmed by I. Since that year thousands of additional ac. have been added, and it is thought that the area of land under I. will continue to increase. This is probable because nearly one-third of the earth's surface receives only 10 in. of rain or less annually, and over another third the rainfall is between 10 and 20 in. Over most of this latter area little if any additional water is needed, except for intensive crops, although special methods of cultivation, aimed at moisture conservation and known as 'dry farming,' have to be adopted. But on land receiving less than 10 in., I. is generally essential if any kind of profitable crop production is to be undertaken. The geographical distribution of regions of deficient rainfall comprises a considerable proportion of the Brit. Commonwealth. The successful development of a stretch of land for I. farming and the maintenance of the fertility of the soil involves a constant attention to economic, engineering,



and scientific factors. The engineering problems connected with the construction of dams, main and branch supply canals, drainage ditches, and pumping stations, like the economic factors, are specific to each dist. and are executed in accordance with fixed principles. The scientific factors comprise the questions of the composition of the water available for I. and the chemical composition and physical properties of the soil. They apply not only to the development of new areas, but also to the maintenance of the fertility of existing I. areas. The scientific factors relate to the concentration of soluble salts (sulphates, chlorides, nitrates and carbonates of sodium, potassium and magnesium, and chloride and nitrate of sodium) in arid conditions; the effects of soluble salts on soil fertility and on the physical state of the soil; and the tolerance of vegetation to alkali conditions. The complete cycle of soil changes which are traceable may proceed rapidly or be so slow that a noticeable change occurs only over a considerable period of years; but sooner or later the danger or deterioration confronts every irrigated area. Thus the famous I. of the Nile valley, where fertility has been maintained for cents., now appears to be showing the first signs of deterioration owing to a change in cultural methods. In the old or basin system of I., after the winter crop of wheat or *bersem*, the land remained fallow from May to Aug. Economic factors, in particular the extension of the area under cotton and maize, have necessitated perennial I., the necessary water for these summer crops being held by the Aswân dam and delivered as required. Under this system the frequency of the *sheraqui* or summer fallow period is much diminished, with the result that difficulties in cultivation and decrease in yield of the more sensitive crops are beginning to creep in. A. Howard and G. L. O. Howard have summarised the principles underlying water saving for the wheat crop in India as follows: (i) I. water must be spread over the largest possible area; (ii) it must interfere as little as possible with the natural aeration of the soil; (iii) heavy waterings reduce the proportion of grain to total crop and increase the growth period; (iv) a limited water supply encourages deep root development; and (v) the soil moisture must be conserved as far as possible by a surface mulch of dry soil. The problems of I. in the Brit. Empire are being faced in different ways in different parts; but it is evident that I. is not simply a matter of providing a water supply; it necessitates constant vigilance by soil experts, otherwise deterioration sets in. See B. A. Keen, *Memorandum on Irrigation Practice and Problems* (Empire Marketing Board pamphlet), 1927; D. Thorne and H. Petersen, *Irrigated Soils*, 1949; O. Israelson, *Irrigation Principles and Practice*, 1950; O.E.E.C., *Farm Irrigation*, 1954; H. Addison, *Land, Water, and Food*, 1955. See also DRY FARMING.

**Irritability in Plants, or Sensitiveness is**

the manner in which they respond to the action of external forces such as (1) gravity, (2) light, (3) mechanical contact or pressure, (4) moisture, etc. (see TROPISM). Instances of irritability to contact are the leaves of the sensitive plant sundew, the stamen of *Berberis*, and the lobes of the stigma of the musk, which close together when touched. Response to presence of moisture is shown by growing roots, which are said to be positively hydrotropic. See also INSECTIVOROUS PLANTS.

**Irsina** (formerly Montepeloso), It. tn. in Basilicata (q.v.), 19 m. WNW. of Matera (q.v.). Pop. 10,500.

**Irthlingborough**, par. and urb. dist. in Northants, England, on the R. Nene, and 2 m. NW. of Higham Ferrers. It has large ironstone quarries, and manufs. of boots and shoes. Pop. 5090.

**Irtysk**, riv. in W. Siberia, chief trib. of the Ob'. It rises in the Altay Mts in Sinkiang (China), flows NW. through Lake Zaysan to Tobol'sk, then N., joining the Ob' from the left. Length 2760 m.; major tribs. Tobol and Ishim. The I. passes through regions with rich deposits of non-ferrous metals (see ALTAY), coal (see EKIBASTUZ), and salt, fertile steppes (see BARABA; KULUNDA; VIRGIN LAND CAMPAIGN), and forests. Almost the whole I. is navigable; navigation started in the 17th cent. The main goods shipped are timber, grain, and coal. The chief ports are Omsk, Semipalatinsk, Pavlodar, Ust'-Kamenogorsk, and Tobol'sk. Ust'-Kamenogorsk and Bukhtarma hydro-electric stations were built in the 1950's.

**Irún**, Sp. tn in the prov. of Guipúzcoa, on the Bidasoa (q.v.). It was very badly damaged in 1936 during the civil war. It is the first Sp. station on the Paris-Madrid railway, and is the customs station for road travellers. It has a Renaissance church and tn hall, and manufs. pottery. Pop. 18,000.

**Iruña**, see PAMPLONA.

**Irvine**: 1. Royal burgh and seaport of Ayrshire, Scotland, on the R. I. It is the bp. of John Galt, the novelist, and James Montgomery, the poet. Robert Burns lived in I. for a few months in 1781-2, and the local Burns Club has a unique collection of Burns's MSS., including *The Cottar's Saturday Night*. An industrial tn with many of the amenities of a holiday resort, its chief industries include hosiery factories, engineering works, chemical works, iron and brass foundries, etc. Five golf-courses are in the neighbourhood. Pop. 15,000.

2. Riv. in Ayrshire, Scotland, rising on the borders of Lanarkshire, which flows W. to divide the dists. of Cunningham and Kyle and empties itself into the Firth of Clyde at Irvine burgh. Trout and salmon are found in the riv. Length 30 m.

**Irvinestown**, agric. tn and rural dist. of co. Fermanagh, N. Ireland, near Upper Lough Erne. Pop. (rural dist.), 12,000.

**Irving**, Edward (1792-1834), cleric, b. Annan, Dumfriesshire. Educ. at Edinburgh Univ. he became a master at Haddington (1810) and at Kirkcaldy (1812). Here he taught Jane Welsh (afterwards

Mrs Carlyle) and fell in love with her, but he was already engaged to a Miss Martin whose family prevented him from breaking off the engagement. In 1815 he obtained a licence to preach from the Church of Scotland, and 4 years later became an assistant to Dr Chalmers, then in Glasgow. In 1822 he became the minister of Cross Street Chapel, Hatton Garden, London, and his sermons became extraordinarily popular. In 1823 he pub. *For the Oracles of God and For Judgment to Come*, in which he declared his belief in the second personal advent of Jesus Christ. His popularity waned as his views developed. His belief in Christ's oneness with men in the attributes of humanity was misinterpreted, and he was accused of imputing sinfulness to Christ. In 1830 he was tried before the London Presbytery, and 2 years later was deposed from the ministry. He was a conspicuous forerunner of what became known as the Catholic Apostolic Church (q.v.). He never held more than a subordinate office in it, and *d.* before its full estab. He became 'chief pastor' of the first church set up in London, in Newman Street, but *d.* shortly afterwards in Glasgow. His complete works were pub. in 5 vols. by Gavin Carlyle (1864-5). See Carlyle's *Reminiscences*, 1881, and biographies by W. Wilks, 1854, Mrs Oliphant, 1862, and A. L. Drummond, 1897.

Irving, Sir Henry (1838-1905), actor, whose original name was John Henry Brodribb, was the son of a Somerset tradesman, who afterwards settled in London. The boy's tastes always inclined to the stage, and, while he was a city clerk, he took lessons in elocution, fencing, and dancing. At the age of 18 he threw up his job and secured an engagement in a stock company at Sunderland and, later, another at Edinburgh. He remained in the provs., learning his art, until 1866, when he made his London debut at the St James's Theatre as Doricourt in *The Belle's Stratagem*. At the same theatre, in the following Dec., he played Petruchio to the Katherine of Ellen Terry. He was now firmly estab. as a London actor, but he did not achieve any marked success until 1870, when his performance of Digby Grant in *The Two Roses* made him popular. His Alfred Jingle in *Pickwick* added to his laurels, but he first became famous when he played in *The Bells at the Lyceum* (25 Nov. 1871). In 1874 he played Hamlet for 200 nights, and with this performance he rose to the head of his profession. Four years later he became manager of the Lyceum, and, with Ellen Terry as his leading lady, made it the first theatre in the country. His prin. successes were Hamlet, Shylock, Benedict, Malvollo, Dr Primrose (in *Olivia*), Landry (in *The Dead Heart*), King Lear, Becket (in Tennyson's play), and Corporal Brewster (in *A Story of Waterloo*). I. was not a good man of business; his production expenses were heavy, his generosity unbounded, and when in 1898 his store of scenery was burnt down, he had to part with the lessorship of the Lyceum, though

he continued to act there until 1902. In the following year he played in *Dante* at Drury Lane, then went for the eighth time to America, made a tour in England, and in April 1905 revived *Becket* at Drury Lane, where he was enthusiastically received. He went on tour again, but his health was broken, and after a performance of *Becket* at Bradford on 13 Oct. he collapsed, and *d.* a few hrs later. He was buried in Westminster Abbey. I. was the greatest figure in the theatrical world of his day. He had many mannerisms, but against these he had dignity, and a great conception of tragedy. His dominant quality was magnetism, not that of all-mastering eloquence, for his voice was neither resonant nor strong, but rather of passionate yet quiet intensity. He had strongly marked physical handicaps, but these disabilities he overcame in the end by patient effort, and towards the latter part of his life he was a model of precise diction. I. had a loyal and generous side to his nature, and as a man was the embodiment of courtesy and distinction. He was a great man as well as a great actor, and it was often said of him that he would have risen to eminence if he had followed any other profession. I. was the first actor to be offered a knighthood, and, after having declined it 12 years earlier, in 1895 he accepted the honour. He married the daughter of Surgeon-Gen. Daniel O'Callaghan in 1869, but they separated 5 years later. Lady I. (who *d.* in 1935) was the mother of Henry Brodribb I. (q.v.) and Laurence I. (q.v.). There are sev. lives, including those by Bram Stoker, 1906, A. Brereton, 1908, Gordon Craig, 1930.

Irving, Henry Brodribb (1870-1919), actor, b. Bayswater, London; elder son of Sir Henry I. (q.v.). Educ. Marlborough and New College, Oxford. He joined Ben Greet's company and met Dorothea Baird whom he married in 1896. He repeated many of his father's parts, but added a reputation in comedy—e.g. Crichton, the butler in Barrie's *Admirable Crichton*, 1902. Acted in America, 1906; Australasia, 1911. For the last 6 years of his life, lessee of Savoy Theatre. His hobby was criminology—he wrote *Life of Judge Jeffreys*, 1898, *Book of Remarkable Criminals*, 1918, and *Last Studies in Criminology*, 1921. See A. Brereton, 'H. B.' and Laurence Irving, 1922.

Irving, Laurence Sydney Brodribb (1871-1914), actor; younger son of Sir Henry I. Educ. at Marlborough and in Paris. His first appearance on the stage was at Dundee in 1891, under Benson. He wrote *Peter the Great* for his father, 1898. His best impersonations were Karl Skule in *The Pretenders* and Takeramo in *Typhoon*, by Melchior Lengyl. I. and his wife (Mabel Hackney) were drowned in the sinking of the steamer *Empress of Ireland* in the St Lawrence R. in 1914.

Irving, Washington (1783-1859), Amer. short story writer, essayist, and historian, b. New York City, son of a merchant who had emigrated from Scotland. After a desultory education, I. entered a law office, but in 1804 went on a European

tour in search of health. On his return in 1806 he was admitted to the Bar, but devoted himself instead to writing. In 1807 he ed. *Salmagundi or the Whim-Whams and Opinions of Launcelot Langstaff and Others*, a miscellany in which he had sev. collaborators. In 1809 appeared *Diedrich Knickerbocker's History of New York*, a satire on the city's manners and politics which has become an Amer. classic. In the war of 1812 he was aide-de-camp to the governor of New York. In 1815 he sailed again for Europe, where he remained for 17 years and became very much 'Europeanised.' In Britain he was welcomed by Campbell the poet and introduced to Scott, whom

wrote with charm on every subject he touched, and was the first to give Amer. literature a permanent standing abroad. See his *Life and Letters*, ed. by P. M. Irving, 1862-4; also lives by G. S. Hellman, 1925; S. T. Williams, 1935; Van Wyck Brooks, *The World of Washington Irving*, 1946.

**Irvingites**, see IRVING, EDWARD, and CATHOLIC APOSTOLIC CHURCH. The term I., repudiated by those to whom it refers, is one of which Irving on his death-bed expressed abhorrence.

**Irvington**, tn of Essex co., New Jersey, U.S.A., 3 m. SW. of Newark. It manufs. rubber and metal products, clothing, toys, hardware, tools, paper, and pigments. Pop. 59,000.

**Irwell**, riv. of Lancs, England, rising 2 m. S. of Burnley, and flowing, in a tortuous course, through Bacup, Rawtenstall, Bury, and Manchester, to the Mersey at Irlam. The Manchester Ship Canal is now included in the lower part of its course. Length 40 m.

**Irwin, Edward Frederick Lindley Wood**, 1st Baron, see HALIFAX, 1ST EARL.

**Is**, see HIT.

**Isaac**, only son of Abraham and Sarah, b. in their old age (Gen. xvii. 17). God, to test Abraham's faith, ordered him to be sacrificed, intervening to save him at the last minute (Gen. xxii). When 40 years old he married his cousin Rebecca, who bore him twin sons, Esau and Jacob. He lived a peaceful, uneventful, nomadic life, and d. in Hebron aged 180. See ABRAHAM. See also H. H. Rowley, *Recent Discovery and the Patriarchal Age*, 1949.

**Isaac I (Comnenus)** (d. 1061), Byzantine emperor of Constantinople (1057-9), the first emperor of the house of Comnenus. He had served in the army, and on the deposition of Michael VI was declared emperor by the soldiers. He reformed the finances, forced the clergy to contribute to the state revenue, and repelled the attacks of the Hungarians in the N. In 1059 he abdicated and retired to the monastery of Studion, where he d.

**Isaac II (Angelus)** (d. 1204), Byzantine emperor of Constantinople (1185-95 and 1203-4), succeeded Andronicus I. In 1195 his brother Alexius seized the throne by force and I. was blinded and imprisoned. Eight years later he was restored to the throne, but was too weak, mentally and physically, to rule, and d. in 1204, shortly after the murder of his son, Alexius.

**Isaacs, George Alfred** (1883- ), Brit. politician and trade union official, b. London. He was elected Labour M.P. for the Gravesend div. of Kent, 1923-4, and for Southwark in 1929-31, and since 1939. I. held various junior appointments in the Labour govs. before the Second World War, and was parl. private secretary to the first lord of the admiralty, 1942-5; he was made a privy councillor, 1945. He was a member of the Royal Commission on Workmen's Compensation, whose recommendations resulted in the passing of the National Insurance (Industrial Injuries) Act, 1946. He was secretary



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he visited at Abbotsford in 1817. I. then produced *The Sketchbook of Geoffrey Crayon, Gent.* 1819-20, the first number of which contained his famous story 'Rip Van Winkle.' *Bracebridge Hall*, 1822, and *Tales of a Traveller*, 1824, were both pub. in London. From 1826 to 1829 he was on the staff of the U.S. embassy in Spain, and wrote a series of historical and romantic works, including a *History of the Life and Voyages of Christopher Columbus*, 1829, *A Chronicle of the Conquest of Granada*, 1829, and *The Alhambra*, 1832, a collection of tales. From 1829 to 1832 he was at the U.S. legation in London. Returning to America in 1832 he pub. a number of stories of frontier life: *A Tour on the Prairie*, 1835, *Astoria*, 1836, and *The Adventures of Captain Bonneville*, 1837. From 1842 to 1846 he was Amer. minister to Spain, then settled at his house 'Sunnyside' near Tarrytown on the Hudson, where he spent his last years. Among his last works were *Wolfert's Roost*, 1855, a collection of sketches, and lives of Oliver Goldsmith, 1849, and Washington, 1855-9, this last a monumental work in 5 vols. Though not an author of great power or originality, I.

of the National Society of Operative Printers and Assistants (*Natsopa*) (1909-1949); past president of the Printing and Kindred Trades Federation; chairman of the Trades Union Congress General Council, 1945; president of the World Trade Union Conference, London, 1945. I. was minister of labour and national service, 1945-51, and minister of pensions, Jan.-Oct. 1951.

**Isaacs, Sir Isaac Alfred** (1855-1948), Australian lawyer and statesman, b. and educ. at Melbourne. Admitted to the Victorian Bar, 1880. Q.C., 1889. Member of Legislative Assembly, Victoria, 1892. Solicitor-General of Victoria, 1893, and Attorney-General, 1894; entered Commonwealth Parliament, 1901. Was a member of the Convention which framed the Commonwealth Constitution. Attorney-General, Commonwealth of Australia, 1905. High Court judge, 1906. Knighted, 1928. Chief Justice, Australian Commonwealth, 1930-1. Governor-General of Australia, 1931-6, being the first Australian to be so appointed.

**Isaacs, Jorge** (1837-95), Colombian poet and novelist, b. Cali; son of an Eng. Jew turned Christian and planter and married to a Sp. woman. Attended school at Bogotá; at 16 went to London to complete his education. In 1864 his first vol. of poems was enthusiastically received. In 1867 he pub. *Maria*, an 'idyllic romance,' somewhat autobiographical. Filled a diplomatic post in Chile. Was a member of Colombian Congress, and director of public instruction at Ibagué, where he d.

**Isaacs, Rufus**, see READING, MARQUESS OF.

**Isabela**: 1. NE. coast prov. of Luzon, Philippines, area 4069 sq. m. It is mountainous and covered with forests. Coffee, sugar-cane, rice, corn, and tobacco are cultivated, and cattle-raising is carried on. Pop. 264,495. The cap. is Ilagan (q.v.), pop. 35,384.

2. Trading centre in Negros Occidental prov., Philippines. Rice and sugar are grown, and sugar is also milled. Pop. 33,740.

3. Tn on Basilan Is., Zamboanga prov., Philippines. It ships lumber and coconuts; corn and rice are grown. There is a fishing industry. Pop. 1000.

4. Abandoned vil. and capo on the N. coast of the Dominican Rep. (q.v.). W. Indies, and 36 m. WNW. of Santiago. It was founded by Columbus (1493), the first permanent European settlement in the New World.

**Isabella** (1292-1358), Queen of England, daughter of Philip IV of France and wife of Edward II of England, whom she married in 1308. Edward neglected her for his favourites and in 1325 she went to France. There she collected forces, and, being joined by Roger Mortimer, her lover, and other barons, landed in England (1326), and attacked and defeated the king. Edward was deposed, imprisoned, and murdered. She and Mortimer ruled supreme for a time, but in 1330 Edward III had Mortimer executed,

and I. was forced to spend the rest of her life in retirement.

**Isabella** (1451-1504), Queen of Spain, daughter of John II of Castile and Leon, and a descendant of John of Gaunt. She married Ferdinand II of Aragon in 1469. In 1474 she succeeded her brother on the thrones of Castile and Leon, and 5 years later, when Ferdinand became King of Aragon, the couple were rulers of all Spain. I. was undoubtedly the visionary and the enthusiast in the royal partnership, while her husband was the diplomatist. Hers is primarily the responsibility for the introduction of the Inquisition into Spain (1480). She was a woman of extraordinary drive and courage, mingled with extreme bigotry; her enthusiasm inspired her countrymen in the final defeat of the Moors, and it was I. who encouraged the New World exploration on which Sp. power in succeeding cents. was to rely so much. See lives by I. L. Plunket, 1919, and A. S. Wittlin, 1936.

**Isabella II** (1830-1904), Queen of Spain, b. Madrid, the eldest daughter of Ferdinand VII. She was proclaimed Queen of Spain at the age of 3, on the death of her father, who had persuaded the Cortes to repeal the Salic law. Her title was disputed by her uncle, Don Carlos, and her reign was a succession of quarrels and intrigues. In 1846 she was persuaded to marry her cousin, Prince Francisco de Assisi de Bourbon (1822-1902), from whom she was separated in 1870. In 1868 she was forced into exile, and abdicated 2 years later in favour of her son, Alfonso XII.

**Isabeau, Jean Baptiste** (1767-1855), Fr. portrait painter, b. Nancy. He studied under Dumont and David, and was employed at Versailles, where he painted the portraits of most of the celebrities of his time. He painted many of the revolutionaries, including Barrère and Saint-Just, and was patronised in turn by Napoleon and Josephine, and by the Bourbon sovereigns. Talleyrand made him official painter for the Congress of Vienna, 1814. Apart from portraits, his best-known works are 'Isabeau's Boat,' 1796, and 'Review of Troops by the First Consul.' He is noted as a draughtsman and lithographer. See life by M. E. Taigny, 1859.

**Isaeus** (c. 420-350 BC), Attic orator, son of Diagoras, b. Chalcis in Euboea. He was a pupil of Isocrates, and wrote judicial orations for other people, and founded a school of rhetoric at Athens, in which Demosthenes is supposed to have been his pupil. Twelve only of his speeches are extant (ed. by T. Thalheim, 1903). They throw an important light on Attic law. See Sir R. C. Jebb, *The Attic Orators* (2nd ed.), 1893, and K. Freeman, *The Murder of Herodes and other Trials*, 1946.

**Isafjörður**, tn in W. Iceland, a fishing and trading centre with small-scale printing and publishing industries. Pop. 2711.

**Isaiah**, son of Amoz, greatest and most important of Jewish prophets, was of high social rank, an inhab. of Jerusalem,

married and the father of a family. The heading of the book tells us that he prophesied from the year of King Uzziah's death (740 BC) through the reigns of Jotham, Ahaz, and Hezekiah; and a late tradition (cf. Heb. xi. 37) tells us that in the days of Manasseh he suffered death by being sawn asunder, but nothing is said of this in Kings. Aben-Ezra was the first to call attention to the fact that the book was capable of subdiv., and later critics have carried on the work most vigorously. The chief break comes after ch. xxxix. Chs. xl to lvi contain many passages that may show them to be post-exilic. The people are addressed as those who have already suffered the punishment of their sins and who are now in exile. Cyrus, who reigned more than a century after the death of I., is actually named, as a sign that Yahweh will fulfil his promises in the near future. This section is itself generally divided into 2 parts, xl-iv and lvi-lxvi, known respectively as Deutero-Isaiah and Trito-Isaiah, of which the second is the earlier in date. It must, however, be admitted that Jewish tradition never had any notion of more than one author for the whole book (cf. Ecclus. xlviii, 23 ff.) and as the second portion of the work undoubtedly reaches the supreme height of O. T. prophecy it is hard to know how so sublime a prophet could have been forgotten. The Dead Sea Scrolls, in the complete I. they contain, show no break between I and II Isaiah. The subdiv. of the earlier part of the work is more uncertain and dubious. Certain portions such as xlii-xiv, 23, xxiv-xxvii, etc., may be post-exilic since they presuppose the conditions of later times. The oracles of I. correspond to 4 invasions of Palestine. The first is that of Tiglath-Pileser (ch. ii to the beginning of x, including the famous Emmanuel prophecies, and possibly also certain later parts); the second, that of Sennacherib and Sennacherib (ch. xxviii, containing the first promises of the coming prince whom later ages have identified with the Messiah). The third invasion is that of Sargon, whether or no it included Judah (xx-xxi, 10; and perhaps chs. x. 5-34 and xxii). To the last invasion, that of Sennacherib, belong most of the chapters from xx-xxv. See S. R. Driver, *Isaiah*, 1888; G. A. Smith, commentary in *The Expositor's Bible*; G. W. Wade, *The Book of the Prophet Isaiah* (Westminster Commentaries), 1911; C. C. Torrey, 1928; E. J. Keesee, 1943.

**Isandhiwana**, isolated kop (q.v.) in Natal (q.v.), 11 m. from Rorke's Drift (q.v.), S. Africa. Here, during the Zulu war, Col. Durnford's column of 800 Brit. troops and as many native levies were surprised and annihilated by 20,000 Zulus (q.v.) under Cetewayo (q.v.), 22 Jan. 1879.

**Iser**, or **Iser**, riv. of central Europe, rising in the Austrian Tirol (q.v.), and flowing N. and NE. through Bavaria (q.v.) to the Danube (q.v.), near Deggen-dorf. It passes Munich (q.v.). Length 220 m.

**Issure**, Clémence, see CLÉMENCE ISLAURE.  
**Issuria**, anct. dist. in Asia Minor,

bounded by Pisidia, Lycaonia, and Cilicia. In Rom. times the inhab. were noted as pirates. They were overcome by P. Servilius in 78 BC, but soon rebelled and were a constant source of trouble. The Isaurs are said to have been effectually subjugated in the reign of Justinian (6th cent. AD). Two of the Byzantine emperors were Isaaurians: Zeno (AD 474-491) and Leo III (718-41). See W. M. Ramsay, *Historical Geography of Asia Minor*, 1904.

**Ischalis**, see ILCHESTER.

**Ischia** (Gk Pithecusa; Rom. Aenaria), very fertile and picturesque is. in the Bay of Naples (q.v.), Italy. It is 6 m. from the mainland. In the centre of the is. is Mt Epomeo (2589 ft), from which the ground slopes down all around to the sea. The is. suffered earthquakes in 474 BC, 92 BC, AD, 1302, and AD 1883. It was attacked by the pirate Barbarossa in 1541, by the Duke of Guise in 1547, and by Nelson (q.v.). Murat (q.v.) took refuge here in 1815. The prin. tns are 1. the cap., on the NE. coast (pop. 10,000), and Casamiciola (q.v.). There are many mineral springs, and the is. is known for its fruit, wine, and fish. Area 18 sq. m.; pop. 31,000.

**Ischl**, Bad, Austrian tn in the prov. of Upper Austria, at the confluence of the Traun and the I. It is the prin. tn of the Salzkammergut (q.v.), has saline springs, and is a tourist and health resort. There is a salt industry. Pop. 13,000.

**Iseo**, Lake (It. Lago d'Iseo; anct. **Sebinus Lacus**), It. lake in Lombardy (q.v.), between Bergamo and Brescia (q.v.). It is enclosed by mts on 2 sides and contains a large, mountainous is. (Monte Isola, 1950 ft). The lake is traversed by the R. Oglio, a trib. of the Po (q.v.). Length 15½ m.; maximum breadth 3 m.

**Iser**, see ISAR.

**Iseran**, pass (9085 ft) in the Alps, in Savoie (q.v.) dept, France, connecting the valleys of the Arc and the Isère.

**Isère**: 1. Dept of SE. France, lying E. of the Rhône (q.v.), and drained also by the I. It and its tribs., the Drac and Romanche. It is very mountainous and heavily wooded in the SE., including the massifs of Grando-Chartreuse and Vercors, and part of the massif du Pelvoux. In the NE. it is lower, but it is generally infertile except in the riv. valleys. Some wheat, potatoes, tobacco, and hemp are grown, and livestock is reared. In the I. valley wine is produced. Coal, iron, and lead are found, and hydro-electric power is well developed. There are metallurgical, chemical, textile, paper, and glove (Grenoble) industries. There are 3 arrons.: Grenoble, La Tour-du-Pin, and Vienne (q.v.). The cap. is Grenoble. Area 3178 sq. m.; pop. 626,200.

2. Riv. rising in the Alps, and, winding W. and SW. for 180 m. (100 m. of which are navigable) through the depts of Savoie, I., and Drôme, joins the Rhône a few miles above Valence.

**Iserlohn**, Ger. tn in the Land of N. Rhine-Westphalia (q.v.), 40 m. ENE. of

Düsseldorf (q.v.). In the Middle Ages it was known for the making of armour. Textiles and iron and steel goods are manu. Pop. 47,000.

**Isernia** (anc. *Aesernia*), It. tn in Abruzzi e Molise (q.v.), 22 m. W. of Campobasso (q.v.). It was originally a Samnite tn (see *SAMNITUM*), and was taken by the Romans c. 260 BC. In 1799 it was stormed by the French, and in 1860 it was sacked in a Bourbonist revolt. The tn has a cathedral, and has numerous antiquities: the massive polygonal walls which form the foundation of the present tn walls are attributed to the Samnites; a subterranean Rom. aqueduct still supplies water to the tn, and there is a notable Rom. bridge. I. is an important centre of communications, and has textile, pottery, and brick industries. Pop. 160,000.

**Isfahan**, tn and dist. of Persia. The dist. is bounded on the N. by Kashan. Ardestan, and Golpayagan, on the E. by Na'in, on the S. by Shahreza, and on the W. by Faridan. Wheat, rice, cotton, opium, tobacco, and fruit are produced. The tn, the cap. of Persia under the Safavid dynasty from the time of Shah Abbas I (1587-1629), lies on the Zayandeh Rud, which is spanned by fine bridges. The tn contains a number of fine buildings, including the Chehel Sotun (Hall of Forty Pillars), built by Shah Abbas I, the Friday Mosque, part of which was built in the reign of Malikahah (1072-92), the Shaykh Lutfullah Mosque, and the Royal Mosque, the 2 last-named being built by Shah Abbas I. To the S. of the tn is the Armenian suburb, Julfa. I. is the main centre of the Persian textile industry. Pop. of tn 254,900.

**ish**, in Scots law, means 'outgoing,' in the sense either of exit or the expiry of a lease.

**Isherwood, Christopher** (1904- ), novelist, b. Disley, Cheshire. His father, who was killed at Ypres in 1915, was an army officer, and I.'s early years were spent in various garrison tns. He was educ. at Repton School and Corpus Christi College, Cambridge. After temporary employment as a private secretary and tutor, he went in 1929 to Berlin, where he stayed until Hitler came to power in 1933. From school-days he had formed a close friendship with W. H. Auden (q.v.) with whom he collaborated in 3 plays notable for their expressionist technique—*The Dog beneath the Skin*, 1935, *Ascent of F 6*, 1937, and *On the Frontier*, 1938. In 1938 he went with Auden to China for the purpose of writing a book about conditions there. The result of this further collaboration was *Journey to a War*, 1939. His first novel, *All the Consplorators*, was pub. in 1928, followed by *The Memorial*, 1932. His next novel, *Mr Norris Changes Trains*, 1935, showed a considerable advance and estab. his reputation as a writer with a capacity for realistic and humorous perceptions and a clear prose style. In Jan. 1939 he went to the U.S.A. with the intention of becoming a permanent resident. His interest in metaphysical studies allied him with the Vedanta Society in Los

Angeles, and he has collaborated in a trans. of the Bhagavad-Gita. Living in California, he has also worked as a script-writer for films. His autobiographical work, *Lions and Shadows*, was pub. in 1938. Later novels are *Prater Violet*, 1945, and *The World in the Evening*, 1954. The *Condor and the Cow*, 1949, tells of a visit to S. America.

**Ishii, Kikujiro**, Viscount (1866-1945), Jap. diplomatist; b. Chiba. Studied law at Tokyo. Was in the consular service and afterwards he became vice-minister of foreign affairs, 1908. Amb. to France, 1912, till made minister of foreign affairs, 1915-16. Viscount and member of House of Peers, 1916. Amb. to U.S.A., 1917-19; and to France from 1920. Acting-president of Council of League of Nations, 1921. Delegate to Naval Disarmament Conference, Geneva. Killed, together with his wife, at their home in Tokyo in an Amer. bomber attack, 25 May 1945.

**Ishim**, riv. in SW. Siberia, left trib. of the Irtysh. It rises in the Kazakh hills and flows through fertile land now being rapidly cultivated. Length 1400 m.

**Ishimbay**, tn in Bashkiria (Russia), on R. Belaya, S. of Sterlitamak. It is the centre of the I. oilfields, the first to be exploited in the Volga-Urals oil region. It was founded in 1932, becoming a tn in 1940. Pop. (1956) under 50,000.

**Ishmael**, son of Abraham by Hagar, the Egyptian handmaiden (Gen. xvi, xxi. 9 ff.). Through Sarah's jealousy, I., at 15, was, with his mother, expelled and driven into the wilderness, where a guardian angel directed them to water. The boy became a famous archer, married an Egyptian, and became ancestor of the Ishmaelites. Mohammed claimed descent from I., and Muslims assert that he is buried with his mother in the Kaaba at Mecca.

**Ishtar**, or *Istar*, anc. Mesopotamian goddess of fertility and unrestrained sexual love, of wedlock, maternity, and war, associated with Tammuz (q.v.). See *ASTARTE*.

**Ishwar Chandra**, see *ISWAR*.

**Isidore of Seville**, or *Isidorus Hispanensis*, St (c. 560-636), Bishop of Seville and Sp. encyclopaedist. He was educ. in a monastery and became distinguished in his controversies with the Arians. In 599 he was chosen Bishop of Seville, and became famous for his powers of administration and his learning in science, hist., and theology. He was present at the councils of Toledo (610) and Seville (619), and it was his influence that altered the organisation of the church in Spain. He wrote an encyclopaedia from his own knowledge. It included law, science, hist., and theology, and helped to keep alive some knowledge of learning through the Dark Ages. His feast day is on 4 April. He was declared a Doctor of the Church by Benedict XIV.

**Isidorian Decretals**, or *False Decretals*, spurious amplification of the canonical collection in use in the church of Spain in the 8th cent. The compiler assumed the

name of Isidore, taking in addition the name of Mercator. The collection is divided into 3 parts. The first contains 70 letters (forged) attributed to various popes. The second contains a collection of conciliar decisions and the forged 'Donation of Constantine' (q.v.). The third is a series of decretals from the Nicæan council. The object of the forger was to reform the canon law and to increase the authority of bishops as against civil rulers. The I. D. were very skillfully composed, and became the cause of violent controversy.

**Isinglass**, a practically pure collagen (q.v.) prepared by drying the swim bladders of various fish, used especially for clarifying wines and beer. It is manuf. chiefly in Russia, Canada, Brazil, and the Indies.

**Isis**, name sometimes given to the upper reaches of the R. Thames (q.v.) above the point where it is joined by the R. Thame (q.v.). The usage is poetic and literary rather than exact and local; it is found in the sixth (enlarged) ed. of Camden's *Britannia*, 1607. The form I. has no etymological connection with the name 'Thames.'

**Isis**, anct Egyptian goddess, whose name means 'seat,' personified the throne of Osiris (q.v.), whose sister-wife she was. She became the type of a dutiful wife and mother. With the elevation of Osiris to chief god she became chief goddess, and eventually her worship, with that of Serapis (q.v.), spread to Rome and Greece. Her temple, built at Philæ by Ptolemy II, was the last centre of paganism in Egypt, being closed by Justinian in the 6th cent. See also HORUS.

**Iskander Beg**, see SCANDERBEG.

**Iskanderun**, Turkish name for ALEXANDRETTA (q.v.).

**Iskra** (Russian 'spark'), unofficial organisation within the Russian Social Democratic Labour party (q.v.), set up in 1900 by Lenin, Martov, and Potresov for the purpose of uniting the more orthodox Marxist and politically minded party members against reformism and economism (q.v.). They pub., together with the Liberation of Labour Group (q.v.), a newspaper *Iskra*, and endeavoured by all means to gain control of the party's local committees. Having succeeded in most cases I. organised a packed Second Congress of the party, but themselves split during the Congress, the 'hard' Iskristas forming the Bolshevik faction. During the I. period Lenin's organisational and tactical principles were for the first time formulated and put into practice. See L. H. Haimson, *The Russian Marxists and the Origins of Bolshevism*, Cambridge, Massachusetts, 1955, and B. D. Wolfe, *Three Who made a Revolution*, 1956.

**Isla de León**, see SAN FERNÁNDO.

**Isia de Pasoua**, see EASTER ISLAND.

**Isia de Pinos**, see ISLE OF PINES.

**Isia Grande**, see TIERRA DEL FUEGO.

**Isia y Roja**, José Francisco de (1703-81), Sp. satirist, Jesuit priest, and a famous preacher, b. Vidanes, Leon. He lam-



British Museum

pooned the ignorance of the Sp. priesthood in a novel entitled *Historia de famoso predicador Fray Gerundio de Campazas*. The book was prohibited (1760) in consequence of the storm of protests raised by the victims, but he pub. a second part in 1770 unknown to his superiors. He also completed, shortly before his death, the trans. of Lesage's *Gil Blas* into Spanish. In 1850 his *Obras Escogidas* came out as vol. xv of the *Biblioteca de Autores Españoles*. With the other Jesuits he was banished from Spain in 1767, and went to Bologna, where he lived until his death. See B. Gaudéau, *Les Prêcheurs burlesques en Espagne au XVIII<sup>e</sup> Siècle*, 1891.

**Islam** (Arabic, meaning to submit, to surrender), the religion preached by Mohammed; an adherent is Muslim (Moslem) or Muslimman which is the Persian adjective. The faith is summed up in the confession, 'There is no god but

God and Mohammed is His prophet.' It proclaims the unity of God, demands obedience to Him, believes in an after life of bliss for believers and torment for the wicked, and makes Mohammed the last and final exponent of God's mind; he is the seal of the prophets. He did not claim to bring a new religion but to revive the faith which was taught first to Adam and then to Abraham, was believed in by Moses, Jesus, and all other prophets, but corrupted by their followers. Some in Arabia had rejected the current worship of idols; such men were called *hanif* (the word is probably Syriac, where it means pagan) because they differed from the mass of their fellows; Mohammed took the word, applied it to Abraham, who came before Moses and Jesus and so was neither Jew nor Christian, and also to his own teaching. His message is contained in the Koran (q.v.) which was not collected into a book till after his death. The 5 'pillars' of I. are belief in one God, prayer, almsgiving, the pilgrimage, and fasting in Ramadan (q.v.); an attempt was made to add a sixth, the *jihād*, the holy war against unbelievers, but it failed. Prayer should rather be called worship, for the prescribed forms contain no intercession; it is performed 5 times a day: before sunrise, after midday, in the late afternoon, at sunset, and when the night is dark. (It is curious that the 5 are not mentioned in the Koran, but they were fixed very early as all sects observe them.) Worship is preceded by an ablution and the worshipper faces Mecca. Each 'prayer' consists of sections, varying in number from 2 to 4 with a prologue and epilogue; a section consists of a litany said in various attitudes, sitting, standing, bowing, and with the forehead touching the ground. Worship may be performed anywhere, but preferably in a mosque. Every act of worship should be preceded by the intention to perform it; this easily degenerates into formalism, but it is a noble ideal. After the set ritual a man may offer what petitions he pleases. The midday prayer on Friday is the service of the week, with a sermon, and all men should attend. Alms might be called a religious tax, for the amount which the believer has to pay is fixed according to his wealth. Everyone who can should make the pilgrimage (see HADJ) to Mecca once; a visit to Medina at the same time is meritorious but not obligatory; the rule is that only those who can afford it shall make the pilgrimage, but many of the poor ignore this. The fast is during the daytime in Ramadan (q.v.), from a little before sunrise till sunset; the sick, travellers, and women with child are excused, though they ought to fast the same number of days in another season of the year. In addition many fast 2 days in every week. The popular idea of the armies of I. with a sword in one hand and a Koran in the other is quite wrong.

I. provides rules for the whole of life; a complete code begins with ritual purity, without which no worship is possible,

treats of sales, murder, and lays down the right way to trim beard and moustache. In theory all laws have the same importance. What had sufficed for the infant state in Arabia was inadequate when the Muslims ruled from the Atlantic to India, so further laws had to be made. One solution of this problem was found in the words and acts of Mohammed, and a great mass of 'traditions' grew up, reports of what he said and did. The most revered collection was arranged to provide answers to legal problems. Another solution was to follow the practice of Medina. A system was built on these answers; a new case was regarded as like one which had been previously settled: solution by analogy (*kiyas*); and finally, when the authorities had agreed on what was to be done, it was sound religion, *ijma'*, the agreement of all Muslims, 'for my people will not agree in error.' The Sunnites (see below), who are the great majority of Muslims, are divided into 4 schools or rites, all equally orthodox; they differ not on dogma but on points of ritual and law. In N. Africa only Muslims are allowed into mosques, for this is the ruling of the dominant rite; in Syria the practice is different.

Differences about doctrine arose. The first began as a political problem in personal rivalry for the headship of the state, but it was soon complicated by ideas of legitimacy, the divine right of kings, and perhaps Persian nationalism. The Shiites (q.v.) upheld these ideas. At the other extreme were puritans who asserted the equality of all Muslims, so that an Abyssinian slave might be the ruler under God. The Arabs, like their contemporaries, expected one man to be head of the state. The earliest rulers were called caliph (deputy, successor) or commander of the believers and were absolute under the law. In theory the law was fixed by scholars and the caliph was only its executive officer. The early caliphs remained Arab chiefs, accustomed to hearing the opinions of the tribe, especially its elders; but the final decision rested on the chief. The nascent religion was surrounded by other faiths which provoked thought on the nature and sovereignty of God and man's free will. The growth of Muslim doctrine was accompanied by divergent opinions which were later branded as heresies; Gk philosophy helped the ferment, and it took some 400 years to form a body of doctrine which was accepted as orthodox. Another ingredient in I. is quietism, which began in ascetic practices and developed into the formation of quasi-monastic orders (see DERVISH) and in the realm of ideas into pantheism; neo-Platonism was largely responsible for these growths, but Christian, Buddhist, and Indian influences may have helped. Celibacy is no part of the monastic ideal in I. The above remarks apply especially to that majority of the Muslims who call themselves Sunnites because they follow the custom (*sunna*) of Mohammed. (This is an



example of a common noun being given a special meaning.) They recognise the first 3 caliphs as lawful rulers, while the Shiites call them usurpers.

The messianic idea is strong and many have claimed to be the mahdi (q.v.); e.g. the founder of the Fatimid dynasty in Egypt (d. 934), the founder of the Almohades (d. 1130), and the mahdi in the Sudan (d. 1885). Others strove to restore religion to its original purity without making special claims, e.g. Abd al-Wahhab, founder of the dynasty which now rules most of Arabia. Sometimes the dervish orders have taken to politics, as the Senussi (q.v.), who have given a king to Libya. There are no priests, but as the law is the voice of God a renowned lawyer is very near to being a priest. Justice was cared for by the judge (*kadi*), the chief of the police, and the inspector of the markets, who also kept an eye on schools to see that the boys were not taught from improper books. There were legal experts to whom the judge could turn for advice in complicated cases. Later in Turkey the chief expert, the shakh al-islam, was a most important person. There was also an extraordinary court to hear those who could get justice in no other way; in early days the ruler himself presided. Now in most countries only questions of personal status are heard by the kadi, as modern codes of civil, commercial, and criminal law have been introduced.

Marriage is a civil ceremony; till recently the Koran has been interpreted as allowing 4 wives, but modern reformers say that this is a mistake. If a man takes a slave as a concubine, her children inherit equally with those of a wife. A foster mother ranks as a true mother, so the prohibited degrees include the relatives of the foster mother. Slavery is permitted and the owner is adjured to treat his slaves kindly, 'to give them the same food and clothes as he himself uses,' and often a slave, bought to be a companion of the son of the house, has been his servant, friend, and champion to the end, though remaining a slave. Strict rules for the div. of an inheritance are laid down; males take twice as much as females (wise when it was decreed), and the testator cannot will away more than a third of his estate or will anything to the chief heir. Modern legislation has changed some of this. Law is also modified by local custom; in Malaya and among the Berbers custom is stronger in many ways. Other social legislation forbids wine, interest on money, and pictures or sculpture of living beings. This last prohibition has had a great effect on art, causing the development of Arabic writing as an ornament in books and on buildings and of arabesque in architecture.

At death the body is washed, shrouded in grave clothes, and carried on a bier without a coffin to the grave, which is so constructed that the earth does not press on the body. A martyr who dies in battle is not washed. As a rule the prayer over the dead is not said in a

mosque. In the grave the dead man is visited by 2 angels who ask him what was his religion; if he can reply 'Islam' he is left in peace, otherwise he is tortured by them and by the walls of the grave pressing upon him. Some think that the body remains in the grave till the resurrection, others think of the good as in some sort of paradise. Educ. Muslims interpret as symbols the sensuous images in the Koran which describe the life to come. The solidarity of the Muslim world is amazing. In the 14th cent. a native of Morocco travelled across the Muslim world to India where he was employed as a judge, and he found himself everywhere at home, even if some local customs shocked him. It is not very different to-day, though now nationalism threatens this solidarity. Mustafa Kemal tried to make Turkey a secular state, but much of his work has been undone. One effect of the impact of Europe on I. has been the introduction of modern codes of law, and it seems to produce agnosticism; but for many years to come it is to be expected that in a crisis W. ideas will prove to be a veneer and the Muslim will come to the surface.

Roughly speaking all lands where Arabic is spoken—Turkey, Persia, Afghanistan, Pakistan, and N. Africa as far as the Tropic of Cancer—are solidly Muslim, and there are believed to be 24 million in U.S.S.R., 30 million in China, and 4½ million in the Balkan states, besides those in Malaya and Madagascar.

See also ARABIA and MOHAMMAD.

See I. Goldziher, *Vorlesungen über den Islam* (2nd ed.), 1926; K. Levy, *An Introduction to the Sociology of Islam*, 1931-3; H. A. R. Gibb, *Mohammedanism*, 1949; A. S. Tritton, *Islam*, 1951.

Islamic Architecture, see MUSLIM ARCHITECTURE.

Island (O.E. *ieg*, *isle*, and *land*), piece of land surrounded by water, but exclusive of continents (see CONTINENT). Greenland (less than one-fourth the size of Australia) is possibly an ice-bound archipelago. New Guinea, with an area of 303,000 sq. m., Borneo (284,000 sq. m.), Madagascar (227,000 sq. m.), and Sumatra (162,000 sq. m.) are the next largest I.s; Great Britain comes sixth on the list, with an area of 83,700 sq. m. I.s may be divided into 2 classes, continental and oceanic. The former are the result of the submergence of a coastal range, or may have been formed by the sea cutting through the neck of a peninsula, or the eating back of an inlet until a piece of land was cut off. In all cases, except Madagascar, these I.s are connected with the mainland by a continental shelf, and their flora and fauna are similar to those of the adjacent continent; for example, the I.s of the W. coast of Scotland bear this relation to Great Britain, which itself bears the same relation to the continent of Europe. I.s may be classed according to their structure: they may be solitary, as Iceland; in chains, like Japan; or in archipelagos, as in the Aegean. Oceanic I.s rise abruptly from great depths, and show no

geological continuity with the mainland. They are due to various causes, and may be either 'volcanic,' due to the gradual rising above the waves of submerged mountain peaks, or to a violent volcanic upheaval of the ocean bed; or 'coral island,' due to the active building of the corals themselves, or the skeletons of marine organisms (see CORAL). Numerous submarine I.s have been discovered which only require volcanic action or the deposition of sediment to rise above the surface of the ocean. Within recent years many flat-topped submarine I.s, rising abruptly from the ocean floor, have been found in the Pacific. They are known as sea mts or guyots. See also GEOGRAPHICAL DISTRIBUTION.

**Island Arc**, name given to a group of I.s. forming an extended chain, usually running for many hundreds of m. across the ocean. The arcs are frequently flanked by ocean troughs which often extend to very great depths, while the individual I.s. along an arc may lie upon a submarine ridge. 1. A.s occur most frequently in the Pacific and off SE. Asia; the Aleutians and E. Indies form good examples. The I. A.s of the present day occur in regions of fairly recent tectonic activity and frequently show very recent signs of vertical movement relative to sea level. Active or recently extinct volcanoes may be present, and marked departures from the normal gravitational field of the earth near I. A.s indicate that they result from forces within the earth's interior which are still operating at the present time, as does the high frequency of earthquakes near many I. A.s.

**Island Scots**, body of highlanders, descendants of Somerled, thane of Argyll and lord of the Isles, who settled in Ireland, establishing themselves in the mts of Ulster, and plundering the surrounding country. The Earl of Sussex made an attempt to subdue these Macdonalds (MacDonnells), but failed. They were finally defeated by their former ally, Shane O'Neill (q.v.), who took their leader, Sorley Boy MacDonnell, prisoner. The English restored the MacDonnells, and Shane O'Neill was slain by one of the highlanders in a brawl (1567).

**Islandmagee**, peninsula 7 m. by 2 m. on the coast of Antrim, N. Ireland, near Larnoo (q.v.).

**Islands**, Bay of, bay on the W. coast of Newfoundland, in the Gulf of St. Lawrence, forming an estuary at the mouth of the Humber R. It is famous for its beautiful scenery, and is within easy reach of good fishing and hunting.

**Islandshire**, part of Northumberland, England. It was at one time part of the co. of Durham; it includes Holy Is. and some dists. near Berwick-on-Tweed.

**Islas Baleares**, see BALEARIC ISLES.

**Islas Canarias**, see CANARY ISLANDS.

**Islas de Barlovento**, see WINDWARD ISLANDS.

**Islas de Sotavento**, see LEEWARD ISLANDS.

**Islay**, I.s. of the Inner Hebrides, Argyll, Scotland, 13 m. W. of Kintyre, separated

from Jura (q.v.) by the Sound of I. The lochs Gruinart and Indaal penetrate so deeply that the W. portion is almost separated and is known as the Rhinn of I. The highest summit is Ben Bheigeir (1609 ft). Fishing, dairy-farming, and whisky distilling are the chief industries. Bowmore is the chief tn. I. was once the prin. seat of the 'Lords of the Isles,' but the Campbells finally gained the I.s. in 1616. Area 235 sq. m.; pop. 4267.

**Isle-Adam**, L', Fr. tn in the dept. of Seine-et-Oise, on the Oise. It is a popular swimming resort. Pop. 4000.

**Isle de Richelieu**, see JAN MAYEN.

**Isle-Jourdain**, L', Fr. tn in the dept. of Gers, on the Save. The church is partly 10th cent. It has great horse, cattle, and poultry fairs. Pop. 3500.

**Isle of Dogs**, see DOGS.

**Isle of Ely**, name given to the N. portion of Cambs, England, on account of its having been at one time isolated by marshes, being included in the region of the Fens; it has been drained and is now fertile land. Famous as the scene of the final stand of Hereward the Wake. It returns 1 member to Parliament.

**Isle of France**, see PORT LOUIS.

**Isle of Man**, see MAN, ISLE OF.

**Isle of Pines**: 1. Is. of SW. Cuba, 80 m. off Batabanó, with an area of 1180 sq. m.; it has some minerals and quarries; but the islanders are chiefly engaged in rearing cattle, and cultivating grape fruit and winter vegetables for the U.S. market. The townships are Nueva Gerona and Santa Barbara. Pop. 10,000.

2. Also an Is. dependency of New Caledonia, 30 m. to the SE., with an area of 58 sq. m. and a pop. of about 600.

**Isle of Thanet**, see THANET, ISLE OF.

**Isle of Wight**, see WIGHT, ISLE OF.

**Isle-sur-la-Sorgue**, L', Fr. tn in the dept. of Vaucluse, on the Sorgue, 12 m. E. of Avignon. It has a fine 14th-17th-cent. church, and has a textile industry and a trade in agric. produce and wine. Pop. 7000.

**Islebius**, Magister, see AGRICOLA, JOHANN.

**Isleham**, vil. of Cambs, England, 10 m. SE. of Ely. Chippenham Fen, 3 m. SE. of the railway station, is a natural reserve of Fenland of particular interest because of the insect, plant, and bird life which it contains. Pop. 1500.

**Isles**, Lord of the, Scottish title claimed by the descendants of Somerled (d. 1164), thane of Argyll. Somerled was a descendant of Colla Uais of Ireland. He succeeded in driving the Norsemen from Argyll and the W. Isles, establishing himself as an independent prince; his lands included Kintyre and the Isle of Man. His descendants maintained themselves in the same manner. In 1411 Donald of the I. who had become very powerful, claimed the earldom of Ross through his wife, including the Isle of Skye. The Earl of Mar, with an army of Lowlanders, marched against him, and Donald was defeated with great loss at the battle of Harlaw in Aberdeen. John Macdonald, 4th lord, committed treason, and was

deprived of his earldom of Ross (1475). In 1493 the Estates declared the lordship itself forfeit to the Crown. The title is now held by the heir to the throne of Scotland.

**Isles of the Blest**, or **Fortunate Isles**, mythical group of is. on the edge of the W. Ocean, peopled by the blessed mortals who were 'never to die.' Sev. nations seem to have believed in this myth. Tradition places the underworld of the anc. Egyptians, the realm of the goddess Amentet (q.v.), somewhere in the W.; the Babylonians believed in an isle of the blessed encircled by 4 rivs. The Gk belief expressed by Homer appears to connect them with the Elysian Fields. Plato describes in his *Timoeus* how Solon was told by Egyptian priests of a country larger than Asia Minor, which was overwhelmed by the sea. This was known as 'Atlantis' (q.v.), and the surviving is. were termed the Fortunate Isles. A very early tradition suggests that an unrecorded voyage to the Canary Isles and Madeira may have gained these places this mythical name. The Celtic Avalon (q.v.) of King Arthur and St Brendan's Is. were represented as blest with summer all the year round, and 'therefore fortunate.' There are also legends of Lyonesse (q.v.) off Cornwall and many others.

**Isleworth**, dist. of Middx, England, part of the bor. of Heston and I., situated on the Thames about 12 m. from London. It is mentioned in the earliest recorded Middx charter (695), and was a royal manor from 1227 until granted by James I in 1604 to the Earl of Northumberland, in whose family it has remained. I. is a flourishing market garden and nursery area, and soap is the only manuf. of importance. Syon House, in a park near the riv., is a seat of the Duke of Northumberland. Originally a 15th-cent. Brigittine nunnery, it was rebuilt in the 16th cent., and has later alterations, including remodelling by Robert Adam.

**Islington**, Sir John Poynder Dickson-Poynder, 1st Baron (1866-1936), Eng. politician and administrator. He sat as Unionist member for the Chippenham div. of Wilts, 1892-1910, but took an independent line as a strong free-trader. In 1910 he was appointed Governor of New Zealand.

**Islington**, parl. and metropolitan bor. of N. London. It includes the anc. manors of Canonbury, Holloway (qq.v.), Highbury, Barnsbury, and part of Kingsland. The building of New Road from c. 1756 onwards, joining the area of Marylebone with the city of London, led to the gradual development of the vil. of I. and the surrounding area. I. contains 2 prisons, Pentonville (1842) and Holloway (1850). Other buildings include the Agric. Hall, Great N. London Hospital, the N. Polytechnic, London Fever Hospital, and the London School of Divinity, St John's Hall, Highbury. The New Riv. runs through I., and on I. Green there is a statue of Sir Hugh Middleton, the founder of the New Riv. scheme. The bor. returns 3 members to Parliament. Area

3092 ac.; pop. 230,500. See also CALEDONIAN MARKET and COPENHAGEN FIELDS.

**Ismail**, see **IZMAIL**.

**Ismail Pasha** (1830-95), Khedive of Egypt, who by his senseless extravagance opened the door to European intervention in Egyptian affairs. In 1863 he became viceroy, having successfully crushed a formidable revolt in the Sudan. In 1867 he persuaded the Turkish sultan to recognise him as khedive, and 4 years later became virtually independent. By 1874, the year of the annexation of Darfur, he had piled up a national debt of over £100,000,000, and in 1875 sold his Suez



ISMAIL PASHA

canal shares. The final result of foreign interference was the abdication of I. P. in 1879 in favour of his son Tewfik. The remainder of his life was passed in exile. See P. Gabites, *Ismail: the Malignant Khedive*, 1933, and G. Douin, *Histoire du règne du khédive Ismaël*, 1934.

**Ismailia**, tn. of Egypt, on the Suez Canal, and connected by rail with Suez and Cairo, with fine public squares and gardens. Pop. 25,194.

**Ismailis**, Muslim sect, an offshoot of the Shiites (q.v.), which accepted as its head Ismail (d. 760), a son of the sixth imam; the father had designated him as his successor but cancelled this designation for his drunkenness; the orthodox accepted this cancellation but others declared it invalid. Muslim historians condemn the I. as 'extremists.' The sons of Ismail fled from Medina and carried on a vigorous propaganda by missionaries. The early hist. of the movement is obscure as it worked in secret, but about 860 Abdullah ibn Maimun was in Syria guiding the activities of the sect. One emissary went to Yemen and founded a small state, another to N. Africa where he prepared the way for the Mahdi, who may have been a descendant of Ali (q.v.) son of Abu Talib or of Maimun. He founded a state in Tunisia in 910 and a later ruler

founded the Fatimid dynasty in Egypt (969-1171). A split occurred in the Egyptian section in 1094. Hasan ibn Sabbah went to Egypt for instruction in 1075 but was turned out; he went back to Persia, and in 1090 captured Alamut, becoming the leader of the Assassins and the first Old Man of the Mts. He and his successors terrorised the country till they were finally crushed in 1256. In Syria the sect played a prominent part during the crusades, and sev. important men fell victims to their daggers. They took neo-Platonism as their philosophy: the ultimate is unlike anything else so we cannot say that it is or that it is not, and the primal reason is the first thing which can be known. Everything is an emanation from that, and the spheres and stars have great influence on human life. The world passes through 7 epochs, each introduced by an apostle who is followed by a series of delegates till the last age ends under the Lord of the Age. There is an elaborate hierarchy beginning with a Speaker and descending through prophet, delegate, preacher, and lower ranks. One of their learned men saw a correspondence between the hierarchy and the order of nature, so argued from the truth of the second to that of the first. The sect still exists in Syria and, till recently, in Yemen; in India it takes sev. forms, among them the Bohoras. The connection with the Karmathians is obscure. See B. Lewis, *The Origins of Ismā'īlism*, 1940.

**Ismay, Hastings Lionel**, 1st Baron (1857- ), Brit. soldier and administrator, educ. at Charterhouse and Sandhurst. He served in India and Somaliland (First World War), and subsequently had a distinguished career in India. From 1951 to 1952 he was secretary for commonwealth relations in Churchill's Conservative gov., but resigned this post on his appointment as secretary-general of N.A.T.O. (q.v.), a position he held from 1952 to 1957. He was made a baron in 1947.

**Ismay, Thomas Henry** (1837-99), Eng. shipowner, b. Cumberland. He started a shipbuilding business of his own at Liverpool, after serving a short term of apprenticeship, and engaged particularly in the Australian trade. In 1887 he entered into partnership with Wm Imrie, and formed the Oceanic Steamship Co. in 1869, later to become chairman of this company, popularly known as the White Star Line, and a director of many other industrial enterprises.

**Ismene**, daughter of Oedipus and Jocasta, who wished to share the punishment of Antigone, her sister, for burying Polynices.

**Ismet Pasha**, see İNÖNÜ.

**Isnik**, see NICAËA.

**Isobar**, line drawn on a chart joining places of equal atmospheric pressure. The chart may represent the earth's surface or a surface at a constant height above the earth.

**Isochronism**, that property possessed by an oscillating system, e.g. a pendulum, whereby the time taken for each complete oscillation is constant. Because of their

practical I., musica instruments such as tuning forks, organ pipes, and stretched strings give notes whose pitch is independent of the intensity. See ELASTICITY and SOUND.

**Isoclinic**, and **Isogonic**. When a magnet is suspended freely from its centre of gravity, and allowed to come to rest, it is found that it takes up a definite position at a given locality. The vertical plane passing through the axis of the magnet is called the magnetic meridian. The angle between the plane of the geographical meridian and the magnetic meridian is called the declination. This varies from point to point on the earth's surface. Isogonic lines are lines connecting places on the earth's surface at which the declination is the same. The angle made by the axis of the freely suspended magnet with the horizontal is called the inclination or dip. At the 2 magnetic poles the dip is 90°; at the magnetic equator its value is zero. The N. magnetic pole is close to lat. 74° N., long. 100° W., and as a result of the Fr. expedition to the S. Pole in 1951-2 it was found that the position of the S. magnetic pole was in lat. 67° S. and long. 142° E. The dip has intermediate values at places between the poles and the equator. Isoclinic lines are those connecting places on the earth's surface at which the inclination or dip is the same. See MAGNETISM.

**Isocrates** (436-338 BC), Athenian orator, a former pupil of Gorgias, Prodicus, and Socrates (qq.v.). Unfitted by temperament for public life, he opened (c. 390) a school of rhetoric, first at Chios then at Athens, and at the same time wrote orations for others. He committed suicide after Chaeronea. Twenty-one of his orations and 9 letters have survived. Though lacking in originality, I. was an outstanding advocate of pan-Hellenism, and he created a prose style which influenced Cicero. There is an ed. (with trans.) of his surviving works by G. B. Norlin and L. van Hook (3 vols., Loeb Library), 1928-45. See H. M. Hubbell, *The Influence of Isocrates*, 1914.

**Isocyanides**, **isonitriles**, **Carbamines**, or **Carbylamines**, class of carbon compounds, isomeric with the cyanides, but containing the group -NC, in which the alkyl group is united to carbon through a nitrogen atom. They are extremely poisonous, have a disgusting odour, and on hydrolysis with a mineral acid yield formic acid and an amine. They cannot be hydrolysed by alkalis, and are made by heating a primary amine (e.g. aniline) with chloroform and alcoholic potash. See NITRIDES.

**Isodimorphous Substances**. Two substances are said to be isodimorphous when they each crystallise in 2 distinct forms (i.e. are dimorphous) and in each of their dimorphous forms are isomorphous. For example, arsenic and antimony trioxides each crystallise in 2 distinct forms which occur naturally in minerals, but each form of the arsenic compound is isomorphous with the corresponding form of the antimony compound. Thus, As<sub>2</sub>O<sub>3</sub> in arsenolite (cubic), in claudetite (orthorhombic);

$\text{Sb}_2\text{O}_3$  in senarmonite (cubic), in valentinite (orthorhombic), A and S are isomorphous, so also are C and V. Again, calcium carbonite is dimorphous, crystallising as calcite and aragonite. Lead carbonate (in the mineral cerussite) is isomorphous with aragonite, but no form is known which is similar to calcite. Crystals of calcite often contain, however, carbonate of lead (plumbocalcite), which shows that this latter may also crystallise in the same form as calcite, although as yet it has not been discovered as a distinct mineral. Calcium and lead carbonates may thus be said to be isodimorphous.

**Isodorus** of Miletus (6th cent. AD), Gk architect, completed S. Sophia at Constantinople, designed by Anthemius (q.v.).

**Isotetes**, single genus of the family Isoëtaceae, which flourishes in temperate and tropical lands and consists of 50 aquatic or semi-aquatic plants. Sev. of the species are known as quillworts on account of their grass-like appearance, and *I. lacustris* is known in Britain as Merlin's grass. *I. echinospora* and *I. hystrix* are also found in Britain.

**Isogonic**, see ISOCLINIC.

**Isola**, fishing port of the Free Ter. of Trieste (q.v.), in the Yugoslav zone, 9 m. SW. of Trieste. It stands in the Gulf of Trieste, on an is. linked to the mainland, has a cathedral, and is known for its wine. Pop. 7000.

**Isola Bella and Isola Madre**, see BORROMEAN ISLANDS.

**Isola del Liri**, It. tn, in Lazio (q.v.), on the Liri, 11 m. ENE. of Frosinone (q.v.). It has paper and woollen mills. Pop. 5000.

**Isolationism**, see UNITED STATES OF AMERICA, *History*.

**Isolator**, a switch, usually hand-operated, for separating a section of a network for repair or resetting of circuit-breakers, to ensure that all parts of the section are 'dead' and remain so until inspection of all parts has proved that all is in order for reconnection to supply.

**Isomerism**, term introduced by Berzelius (q.v.) to denote the phenomenon of the existence of 2 or more different substances whose molecules consist of the same number of the same atoms. There are 2 compounds, ethyl alcohol and dimethyl ether, which both have molecules consisting of 2 carbon atoms, 6 hydrogen atoms, and 1 oxygen atom. The existence of isomers is explained by the different ways in which the atoms are arranged in the molecules. Ethyl alcohol is  $\text{CH}_3\text{CH}_2\text{OH}$ , while dimethyl ether is  $\text{CH}_3\text{OCH}_3$ . The first case observed was that of ammonium cyanate and urea (Wöhler, 1828), both of which have the formula  $\text{CON}_2\text{H}_4$ ; the former compound, however, is of the structure  $\text{NH}_4\text{—O—C}\equiv\text{N}$ , while the structure of urea is  $\text{O}=\text{C}(\text{NH}_2)_2$ . **Stereoisomerism** is I. which cannot be explained on the usual plane formulae, but necessitates consideration of all 3 dimensions of the molecule. **Dynamic isomerism** or **tautomerism** (q.v.) is the name given to the reversible chemical trans-

formation of one isomer into another. See DIPOLES.

**Isomorphism** (Gk *isos*, equal; *morphe*, form). Two substances are said to be truly isomorphous when their crystalline forms and chemical compositions are similar. Mitscherlich discovered that the phosphates and arsenates of sodium crystallise in the same form, and from this and other observations he formulated, in 1821, his 'law of I.' which states that substances of similar chemical composition exhibit the same crystalline form. Since, however, a large number of similarly constituted substances are now known which crystallise in distinct forms, the statement requires modification. Among truly isomorphous substances may be mentioned the following: the alums, zinc sulphate,  $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ ; and magnesium sulphate,  $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ ; ammonium chloride,  $\text{NH}_4\text{Cl}$  (in which the group  $\text{NH}_4$  behaves as a metallic radicle); and potassium chloride,  $\text{KCl}$ , etc. The converse of Mitscherlich's law by no means holds. Thus we find the diamond, C; magnetite,  $\text{Fe}_3\text{O}_4$ ; and the alums, which exhibit no chemical analogy, crystallising in octahedra. These substances are not truly isomorphous, but are said to be isogonous. The power to form 'mixed crystals' or 'overgrowths' is generally accepted as a criterion of I. Thus, magnesium and zinc sulphates crystallise together in all proportions in the same form as a crystal of either constituent, and if a crystal of chrome alum be immersed in a solution of common alum, the new layer of the latter will be deposited regularly on the old crystal of the former. The law of I. is the most important generalisation in the science of crystallography (q.v.), and has proved of much use in settling the atomic weights of sev. elements.

**Isonitriles**, see ISOCYANIDES and NITRILES.

**Isonzo** (anct. Sontius), riv. of Yugoslavia and Italy, which rises at Monte Terglou in the Julian Alps (see ALPS), and flows on a winding course S., past Gorizia (q.v.), to the Gulf of Trieste (see VENICE, GULF OF). Shortly before entering the sea it unites with the Iudrio. It is 78 m. in length, is deep and rapid, and waters a rich alluvial plain; at Gorizia it is about 140 ft above sea level. Odoacer (q.v.) was defeated on its banks by Theodoric the Great (q.v.) in AD 493. In the First World War, being in what was then Austrian ter., it was early the objective of the Italians, whose armies reached it in 1915, their aim being mainly directed to the achievement of their traditional irredentist dreams. But this was all they were destined to accomplish for some time, for in 1916 the Austrians weakened the It. hold on the I. valley by a determined advance in the Trentino. The Italians, however, aided by Brusilov's drive on the E. front (see BRUSILOV, ALEXEI ALEXEIEVICH and RUSSIAN FRONT (FIRST WORLD WAR)), launched a strong counter-offensive along the riv., and on 4 Aug. the first day of the move against Gorizia, carried the heights on the W. bank overlooking the tn,

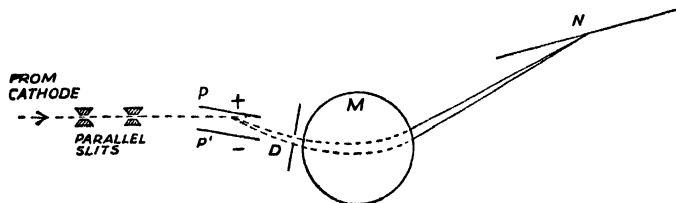
storming the summit of Monte San Michele and, after sev. more days' fighting, capturing all the heights W. of the riv., together with Gorizia. They were now appreciably nearer their goal of emancipating Trieste; but thereafter Cadorna, under whom these successes had been won, suffered his historic defeat at Caporetto (see CADORNA and CAPORETTO). No further fighting of decisive importance took place on the I., the issue being decided on the Piave.

**Isopoda**, name of an order of Malacostracan crustaceans, characterised by a broad, flattened body, with no carapace, and by lamellar legs, whose inner rami serve as branchiae, situated on the abdomen. They have many features in common with the Amphipoda, as, for instance, the sessile eyes and the firm, calcareous covering of the body, but the abdomen of I. is usually much shortened and the heart is situated posteriorly. Some of the larger species inhabit the bed of the sea,

called 'thickness lines' (see METEOROLOGY). They are used to determine the thermal component of the upper winds and for predicting the direction of travel of depressions and anticyclones.

**Isotope**, a word introduced by Soddy (q.v.) to embrace those instances where 2 or more individuals of different atomic weight occupy the same position in the Periodic Table. I.s have identical atomic numbers, the number and distribution of electrons outside each nucleus being the same. For practical purposes, their chemical and physical properties agree. Though in the case of the I.s of hydrogen, viz. hydrogen itself (atomic weight 1), deuterium (atomic weight 2), and tritium (atomic weight 3), the chemical and possibly physiological properties are noticeably different.

Ordinary lead (atomic weight 207.2; atomic number 82) is isotopic with radium G (atomic weight 206.05), a disintegration



POSITIVE RAY SPECTROSCOPE

others are inhabitants of fresh waters, and many are parasitic on the bodies of fishes and crustaceans. I. are divided into 2 sections; under I. Genuina are grouped Oniscoidae, wood-lice, the only terrestrial forms, Asellota, Phreatoidea, Valvifera, Flabellifera, and Eupharidina.

**Isoprene**, or **Methyl- butadiene** ( $\text{CH}_2\text{CMe}\cdot\text{CH}:\text{CH}_2$ ), liquid which boils at  $36-37^\circ\text{C}$ . It is a member of the olefine series of hydrocarbons, and can be obtained by the distillation of caoutchouc or synthetically from isomyl alcohol (which is present in fusel oil). I. has attracted much attention because it may readily be converted into substances resembling rubber, but synthetic rubber as hitherto made is generally inferior to, and more expensive than, the natural product.

**Isoprye**, greyish or black mineral, consisting of silicates of lime, iron, and alumina. It has a vitreous lustre like obsidian.

**Isoquinoline**, see LEUCOL.

**Isothermal Lines** (from Gk *isos*, equal; *thermos*, heat), also called **Isotherm**, connect places on a map where the temp. on the earth's surface is the same at any given time at the sea level. Isothermal charts afford a ready means of studying relative temps. and may be drawn to indicate the average monthly, seasonal, or ann. temps. In modern upper-air forecasting, isotherms of mean temp. for specified layers of the atmosphere are

product of uranium; with radium D (atomic weight 210), a product of the disintegration of radium; and with thorium D (atomic weight 208). Richards obtained the value 206.08 for the atomic weight of lead associated with the mineral cleveite, whilst Hönigschmid reported 207.9 for lead from thorite deposits. During radioactive changes (see RADIOACTIVITY) the effect of an element losing a  $\beta$ -particle (an electron of negligible mass) is to shift it 1 place to the right in the Periodic Table, whilst the loss of an  $\alpha$ -particle (identical with the helium nucleus of 4 protons and 2 electrons) shifts the element 2 places to the left. Thus if an element loses 2  $\beta$ -particles and 1  $\alpha$ -particle, a new element is formed occupying the same position in the Periodic Table (an I.). Again, an atom of uranium (atomic weight 238) can lose 8  $\beta$ -particles and 6  $\alpha$ -particles, giving an element of atomic weight  $238 - 4 \times 6 = 206$ .

The **positive ray spectroscopy** (Aston, 1919) has been invaluable for the discovery of I.s of very general occurrence. The elementary gas to be examined is subjected to an electrical discharge (see DISCHARGE TUBES) under high vacuum, whereby some rays carrying positive charge result. These rays are allowed to pass through a slit in the cathode to an observation chamber beyond (see Fig. above). The diaphragm D selects rays

which have been deflected by the electrical field imposed by the oppositely charged plate *PP'*, and they are then brought to a focus on the photographic plate *N* by the operation of a magnetic field introduced by the electro-magnet *M*. A *mass spectrum* depending on mass alone is obtained at *N*. Each *I*. gives a record of its presence, and its atomic mass can be found. Thus, chlorine contains 2 *I.s* of atomic masses 35 and 37 mixed in such a ratio that the average atomic weight is 35.46. Tin has 11 *I.s*. The atomic masses of all *I.s* examined are whole numbers (within 1 part in 1000) except hydrogen (1.008). Aston later made a more powerful apparatus, and has obtained small differences from whole numbers which give information about the packing inside the nucleus.

*Separation of the isotopes.* Chemical methods in general are unsuitable, but other methods, such as distillation, evaporation, diffusion, effusion, and centrifugation, have been more successful; in particular cases—e.g. uranium 238 and uranium 235—separation has been effected on a comparatively large scale.

Most elements have isotopic forms, and some (e.g. xenon, tin, and cadmium) have sev. See PHYSICAL CONSTANTS.

**Isotropy**, condition of having uniform characters throughout. The term is especially applied, in physics, in connection with substances or media in which elastic stresses are propagated uniformly in all directions. Such substances are termed *isotropic*, and the possession of the quality supposes that the molecular structure of the medium is homogeneous throughout its substance. Non-homogeneous media, on the other hand, are known as *anisotropic* or *heterotropic*. In crystallography *I.* is a property possessed by certain crystals of the cubic system which have only 1 index of refraction for rays of the same wave-length. They have, therefore, no action on polarised light apart from normal absorption. *I.*, in embryology, is applied by Pflüger to that condition where there are no predetermined axes.

**Ispahan**, see ISFAHAN.

**Ispiresou, Petre** (1830–87), Rumanian writer and collector of folk stories. Four are trans. in Kunos's *Turkish Fairy Tales*, 1896.

**Israel** (God fighteth), name given to the patriarch Jacob (Gen. xxxii), and also to the 12 tribes of the Hebrews as the children of *I.* Later the name was restricted to the N. kingdom, while the S. kingdom was known as Judah (q.v.). The accounts of their origin, contained in the early books of the Bible, are based upon genuine tradition. Their ancestor, Abraham, migrated some time between 2000 and 1700 bc from Haran in Mesopotamia into the land of Canaan. Here his descendants lived a pastoral life, and ultimately, in the time of Jacob, a famine in the land of Canaan led to a fresh migration into Egypt. Here they obtained leave from Pharaoh to dwell in the land of Goshen, and they soon multiplied, so that under a later Pharaoh (probably Rameses II,

1300–1233) they were subjected to repressive measures. Then there arose the figure of Moses, the great developer of both the religion and the law of *I.* Moses was the son-in-law of a priest of Midian, and at Horeb (i.e. Sinai), the mt of God, he heard the call of Yahweh to deliver *I.* from the bondage of Egypt. With much difficulty the work was accomplished. Moses led the Israelites to Mt Sinai, and here a covenant was solemnly made with Yahweh. From Sinai they passed to the work of conquering Canaan for which they had set out. An attempt made at Kadesh on the S. frontier was unsuccessful, and they returned to the wilderness for 40 years. During this time Moses *d.*, and it was under Joshua that the entry into Palestine was finally made. Details of this are given in the Book of Joshua.

The Israelites now settled down to an agric. and commercial life, entering in many cases into treaties of friendship with and adopting the religious practices of their Canaanite neighbours. This weakened the bonds of union between the various tribes and might well have led to the ultimate fusion of the races. This was prevented by the rise from time to time of the *shofetim*, or Judges, who roused the dying ardour of the tribes. Fifteen such heroes are named in the Book of Judges. The most famous are Deborah, the prophetess, Barak, Gideon, Jephthah, Samson, and the prophet Samuel. Their conflicts were with their own kinsmen, the Moabites, Ammonites, and the Midianites. The Philistines were among the most powerful opponents of *I.*, and after suffering defeat from this race the Jews cried for a king, so that more headway might be made against the oppressors and that they might be like 'all the other nations.' Samuel the prophet, their leader, reluctantly consented, and chose as their king Saul, the son of Kish.

*From the foundation of the monarchy* (c. 1020 bc) to the exile. Saul soon proved his fitness for the new position first by the raising of the siege of Jabesh-Gilead, after which he was solemnly proclaimed king at Gilgal, and then by a decisive victory over the Philistines at Micmash. Here the victory was due chiefly to the bravery of Saul's son Jonathan and 600 Benjamites who accompanied Saul, a member of their tribe. Saul's next campaign was against the Amalekites, who had long been troubling Judah. He was, however, given to fits of melancholy, and to soothe him in these, David, the son of Jesse the Bethlehemite, a 'cunning player on the harp,' was brought in to play to him. His presence, however, had a bad effect on Saul, and this was increased by David's rapid rise in popularity.

David had already attracted the attention of Samuel, now estranged from Saul, and had been marked out by him as a future king of *I.* He had also gained great renown as the slayer of a Philistine champion. His courage and success in war had led Saul to make him his armour-bearer, and his intimate friendship with Jonathan, the king's son, rendered his

position such as to cause Saul's jealousy. Moreover, he was the king's son-in-law. Saul decided to kill David, who fled and became an outlaw, ultimately having his centre of operations at Ziklag. He resolutely refused to enter into operations against I., and events were so shaping themselves that it was possible for him to return in power on Saul's defeat and death in battle against the Philistines at Mt Gilboa. David, on hearing of it, immediately went up to Hebron with his followers and was anointed King of Judah. Meanwhile Abner, Saul's leading general, had taken Saul's son, Ishbaal (Ishbosheth), and had him crowned as King of I. War in consequence broke out between I. and Judah, in which the S. kingdom was steadily victorious. On the death of Abner and Ishbaal, the crown of I. was offered to David. He transferred his cap. to Jebus (Jerusalem), the great hill fortress of the Jebusites, and thither he brought the ark. In a succession of violent conflicts David secured the freedom of his kingdom from the Philistines and pushed its boundaries in the N. to Dan, S. to Beersheba, and W. to the Phoenician frontier. David's great work, however, was in the consolidation of the kingdom, and his internal administration. To him, too, the idea of the Jerusalem Temple owed its inception. His high poetic and religious faculty is attested by his psalms and by those of the school named from him. The crown passed from David to his son, Solomon, whose name is associated by tradition with power, wisdom, and wealth.

Now for the first time I. took a prominent place among the great nations of the E., though it is probable that it was in some degree dependent on Pharaoh, whose daughter Solomon had married. Commercial treaties were entered into with such neighbouring monarchs as Hiram of Tyre, in union with whom ships were sent as far as Tarshish (Spain) and Ophir (S. Arabia?). Solomon now led the life of the ordinary E. despot. His court was more splendid than any other of which we read in the hist. of I., but such magnificence could be sustained only by a heavy taxation. Matters reached a crisis on the death of Solomon (c. 933 BC). A deputation, headed by Jeroboam, came to Solomon's son, Rehoboam, to implore relief from the burdens which his father had laid upon the country. He refused, and there was a revolt of the 10 tribes of I. under Jeroboam, the son of Nebat. Judah and Benjamin alone were left to Rehoboam, while I., the N. kingdom, made Jeroboam its king.

When Jeroboam instituted his new kingdom, one of his initial acts was to forbid the Israelites to keep the ann. festivals at the Temple. He did this by instituting sanctuaries at Bethel and Dan, where he set up golden calves as symbols of Yahweh, and instituted a new priesthood. For this retrograde step he was condemned by the later prophets.

During the 2 cents. that elapsed between the death of Solomon and the

conquest of I. by Shalmanezzer, King of Assyria, 19 kings reigned in the kingdom. These 19 kings may be regarded as covering 4 periods. The first period (c. 933-885 BC) is occupied in attempts to establish a dynasty and in wars with Judah. It ended in civil strife, from which ultimately emerges the new dynasty of Omri, which gives us the second period from 885 to 841. Its kings, after Omri himself, were Ahab, Ahaziah, and Jehoram. The reverses which Omri suffered at the hands of the Syrians were compensated by Ahab. This king was a great statesman, though the injury his idolatry did to I. is well shown in the biblical narrative. He formed an alliance with Jehoshaphat, King of Judah, the alliance being cemented by the marriage of Jehoshaphat's son, Jehoram, to Athaliah, daughter of Ahab. The 2 nations then took united action against the Syrians, with whom, after the defeat of Benhadad II., a treaty was formed. Ahab d. in battle at Ramoth Gilead, and in the reign of Jehoram an attempt was made in union with Ahaziah, King of Judah, to retake this tn. Now occurred the rebellion of Jehu ben Nimshi, in which Jehoram and Ahaziah both perished. Jehu founded his dynasty (which forms the third period, 841-747) in a sea of blood. Down to the time of Jehu, the sovereignty of Judah had remained in the possession of the house of David (6 kings), but on the death of Ahaziah an attempt was made by Athaliah to exterminate this dynasty. Joash, however, escaped, and after 6 years was proclaimed king by Jehoiada, the chief priest. Athaliah was slain and the Davidic dynasty restored. A fresh attack now came from Hazael, King of Syria, who was bought off by Joash. There now succeeded for Judah a time of comparative prosperity and quiet. Matters changed with the accession of Tiglath-Pileser III to the throne of Assyria in 745 BC. At this time a general confederacy of Syrian states against Assyria was being promoted, but Ahaz, King of Judah, refused to join it. He relied instead in opposition to the prophet Isaiah, upon friendship with Assyria. Hence the Syrians and Israelites opened a campaign against him, in which they then were joined by the Edomites. Tiglath-Pileser entered N. Israel in support of Ahaz, and deported into Assyria the leading inhab. of Galilee and the dist. around. He also extinguished the Syrian monarchy, and set up Hoshea as vassal king in I.

For some years Hoshea remained submissive, but he was then persuaded to revolt by So, King of Egypt. Hence Shalmanezzer IV marched against him, and for 3 years besieged him in Samaria. The city was eventually taken by Sargon (722 BC), and the chief inhab. of I. to the number of 27,290 were taken into Mesopotamia and Media. They were replaced by Assyrian colonists, and these, intermixing with the inhab. of the country, formed the mixed race known as Samaritans. The kingdom of Judah had, after all, survived its more powerful neighbour.



Here Ahaz was still king, but he was succeeded a few years later by his son, Hezekiah, who attempted a reform in the religion of the country, which had been much debased under the preceding kings. He inaugurated a campaign against local sanctuaries and strove to restrict worship to the Temple. In this he was assisted by Isaiah. Judah was still subject to Assyria, and Hezekiah's friendship with Egypt, opposed by the great prophet Isaiah, brought him into danger of punishment from Sennacherib. An Assyrian army was indeed approaching Jerusalem when it was arrested by a plague. Egypt was moreover prepared to support Hezekiah, and so Sennacherib retired. On the death of Hezekiah the succeeding princes encouraged the heathen cults in their worst forms, but another and greater reform came on the accession of Josiah (621 BC), connected especially with the finding of the book of the law (see DEUTERONOMY) by Hilkiah the priest.

Meanwhile the Assyrian empire was breaking up, and Judah came into collision with Pharaoh Necho II, who was desirous of pushing the interests of Egypt. In conflict with him Josiah fell at Megiddo (608), while Jehoahaz, his younger son and heir to the throne, was carried into Egypt while Necho set Josiah's eldest son, Jehoiachin, on the throne of Judah. In 605 Egypt became subject to Babylon, and Judah became subject to Nebuchadnezzar II before 600 BC. In 598 an attempt to regain his independence was made by Jehoiachin, and Jerusalem was besieged. Jehoiachin, the boy-king who had succeeded his father, was taken prisoner, and in the following year (597), from which Ezekiel reckons the years of the captivity, the greatest and noblest of the Jews were deported to Babylon, while Zedekiah was appointed king over those that remained. In 586 a fresh revolt led to the sack of Jerusalem by Nebuchadnezzar and fresh deportations. There was still no peace, however, for Gedaliah, the Babylonian governor left in charge, was assassinated, but the remnants of the Jews fled into Egypt, taking with them the prophet Jeremiah.

*From the exile to the revolt of the Maccabees.* The exile was a formative period in I's religious development. It saw the prophetic ministry of Ezekiel and of Deutero-Isaiah. The synagogue was now instituted and the general conception of the after-life was developed. But although those Jews whose minds were fixed chiefly on commerce found themselves better off in Babylon than in their own country, the idea of absence from the Temple was intolerable to the religious. It was not long before attempts were made to secure a return to Jerusalem. Nothing more is known of the hist. of the return from exile until the reign of Artaxerxes Longimanus (462-425), when a band of some 6000 exiles, under the leadership of Ezra the scribe, arrived in Jerusalem. In 446 the city of Jerusalem was refortified, and the Temple worship reinstituted. To this period belongs

the final split between the Jews and the Samaritans, made by the estab. by the latter of a rival sanctuary on Mt Gerizim.

Palestine was affected by Alexander the Great's march through the E., and, on the defeat of the Persians at Issus in 333, it became subject to Gk rulers. A large number of Jews were deported to form part of the pop. of Alexandria. On the subdiv. of the kingdom on Alexander's death, Palestine fell to the lot of the Ptolemies, under whom still larger numbers of Jews passed into N. Africa. The lot of Palestine was, on the whole, fortunate until the reign of Ptolemy Philopater, when the Jews were much oppressed. After the defeat of the Egyptians, Antiochus III incorporated Palestine with the dominions of the Seleucidae (197). A deliberate attempt was made under the next sovereign, Antiochus Epiphanes, to stamp out the Jewish religion. Its peculiar rites, such as circumcision and the observances of the Sabbath, were strictly forbidden, while the Temple was dedicated to Zeus, and sacrifices offered there. Thousands suffered death rather than give way to such coercion, but ultimately a deliverer arose, who inaugurated one of the greatest and most heroic periods in Jewish hist.

*From the Maccabees to the destruction of the Temple.* Hitherto the resistance of the Jews had been mainly passive. Active resistance came from the family of Mattathias, an aged priest of the vil. of Modein. He slew a Jew who was offering sacrifice to heathen deities, and slew also the Syrian officer who was supervising. Then, taking with him his 5 sons, he fled eastward, and gathered round him in the wilderness a great company who would with him take aggressive measures, fighting if need be even upon the Sabbath itself. The act was a desperate one, and a measure of success was rendered possible only by the internecine struggle for the throne which distracted the Syrians themselves. Mattathias, who was an old man when he commenced the revolt, soon d., handing on the leadership to his son Judas, surnamed *Maccabeus*, 'the hammerer', from which his whole family has received the name of 'the Maccabees.' Judas was a great warrior and a fervent believer in his cause. He defeated Apollonius, a prominent Syrian general, and finally Lysias, the viceroy himself, at Beth-zur. Being now master of the country around the cap. Judas decided to make Jerusalem the centre of his operations, and hence the Temple was fortified and rededicated. After being besieged in the Temple by the Syrians, in 162 BC, permission was granted them to exercise their religion freely.

But the Maccabees resolved to continue the struggle for political freedom. The secular struggle was to be less successful than the religious. It began well, with the defeat and death of Nicanor near Beth-horon, but this was almost immediately followed by an overwhelming victory for the Syrians at Eleasa, in which Judas himself was slain. The leadership

of the party, which was now scattered far and wide, fell to Jonathan, the brother of Judas, who was able by skillful diplomacy to secure peace on favourable terms, ultimately being himself made high-priest in 153. In 143 Jonathan was slain in the quarrels for the throne of the Seleucidae, and Simon, his brother, became leader of the Maccabean party. He fortunately espoused the cause of Demetrius II, from whom he secured a recognition of Palestine's independence (142). So famous a year was this that it was considered the beginning of a new Jewish era, and from its dates were counted and coins were dated. Simon, who was made high-priest in 141, was a wise and prudent ruler, and under him the country enjoyed comparative quiet, and in the one important conflict, that with Antiochus Sidetes, Simon was victorious.

But there was still much scheming and party strife. Ptolemy, Simon's son-in-law, was striving to secure the supremacy, and as a step to this Simon was assassinated. But the crime gained Ptolemy nothing, for the power fell into the hands of Simon's ambitious third son, John Hyrcanus, who assumed the high-priesthood in 134 BC, and with it the sovereignty. The reign of John Hyrcanus was outwardly most prosperous, though at the beginning he was hard pressed by Antiochus. Later in his reign (134-104) he extended the Jewish dominions considerably in all directions. The Samaritans were reduced and the 'Temple' on Mt Gerizim was destroyed. He further subdued the Galileans and Idumaeans. During his reign, however, there is visible the rise into political prominence of the Pharisees and Sadducees. John was led to throw in his lot with the latter of these on account of that opposition of the Pharisees to his family which was to continue throughout the period of the Hasmonean dynasty. On his death his son, Aristobulus I, succeeded to the throne by the murder of his brother, and reigned but 1 year, during which he reduced the Ituraeans. He was followed by Alexander Jannaeus, a warrior prince who almost entirely neglected his sacerdotal position, his chief aim being the extension of his ters. He met his death (76 BC) in a campaign against the Arabians.

After him the high priesthood fell to Hyrcanus, Alexander's eldest son, but all power remained in the hands of his mother Alexandra, who accorded a much greater share in public affairs to the Pharisees. But Hyrcanus's younger brother, the energetic Aristobulus II, angry at his exclusion from a share in the gov., raised an army and deposed Hyrcanus. Then, as the supporter of Hyrcanus, there arose Antipater the Idumaeen. This man induced Hyrcanus to place himself under the protection of Aretas, King of the Nabataeans, by whose aid Aristobulus was defeated. The Romans now took a hand in the struggle, and Pompey, in 65 BC, sent his legate, Scourus, to settle matters, which he did in favour of Aristobulus. This decision was reversed 2 years later

by Pompey himself. Hyrcanus was made high priest, but the gov. of Judaea was attached to the Rom. prov. of Syria. In 57 an attempt was made to set Alexander, the eldest son of Aristobulus, on the throne. Alexander was taken prisoner by Gabinius, governor of Syria, and in order to break up what unity remained among the Jews the land was divided into 5 administrative dists. Aristobulus, who had been taken by Pompey to Rome, now escaped and raised a second ineffectual revolt in 56, and this was followed in 55 by a last attempt under Alexander, which was put down by Gabinius. On the death of Pompey, however, Hyrcanus made his submission to Caesar. Antipater the Idumaeen then secured for himself the post of procurator of Judaea (47 BC), while to Hyrcanus was left only the high priesthood.

Thus ended the Hasmonean dynasty. Antipater also succeeded in making his eldest son, Phasael, governor of Jerusalem, and his other son, Herod, governor of Galilee. But the patriotic Jews viewed with horror this estab. of an Idumaeen dynasty, and set up Aristobulus's last remaining son, Antigonus, as his rival. Antipater was poisoned and Phasael committed suicide in prison, but Herod invoked the aid of the Romans, and in 37 secured Jerusalem. Antigonus was put to death in the same year. Herod carried on the difficult task of ruling Judaea by the aid of the Romans, and with the utmost cruelty. On his death the kingdom was divided into tetrarchies, ruled respectively by his sons Antipas, Philip, and Archelaus, the last-named ruling Judaea and Samaria. His rule, however, was so cruel and despotic that in the year AD 6 Augustus deprived him of his power and sent him into exile. His tetrarchy was then attached to the prov. of Syria. Henceforward, except for the brief period from AD 41 to 44, Judaea was under Rom. procurators. During these few years it was ruled by Herod Agrippa, whose favour with Claudius secured to him all the ters. over which his grandfather had ruled. On his death there was a period of dreadful anarchy and internecine strife between the inlab. of Palestine, which was increased rather than lessened by the actions of the procurators, many of whom were in league with the worst elements of the pop. From the chaos there rose a fanatical party known as Zealots or Sicarii (Assassins). A general revolt broke out in the year 66, and a bloody struggle ensued, terminated only by that bloodiest of all scenes, the destruction of Jerusalem by Titus (AD 70). See also HEBREW LANGUAGE AND LITERATURE; JEWS; PENTATEUCH.

See P. Goodman, *History of the Jews*, 1911, 1939; R. Kittel, *Geschichte des Volkes Israel*, 1923-7; A. Lods, *Israel*, 1930; A. Jirku, *Geschichte des Volkes Israel*, 1931; W. O. E. Osterley and T. H. Robinson, *A History of Israel*, 1932.

Israel, State of (Heb. *Medinat Yisrael*), Jewish rep. in Palestine. (For the hist. of the anct Heb. nation see preceding

article.) I. is bounded by the Mediterranean on the W., by Egypt and the Red Sea on the S., by Jordan on the E., and by Syria and Lebanon on the N. The state of war between I. and her neighbours has not been terminated and so the area of the country cannot officially be determined, but from 1949 down to the resumption of hostilities with Egypt in Oct. 1956 it remained at 7993 sq. m. The land borders total 589 m. (Lebanon 49 m., Syria 47 m., Jordan 329 m., Egypt 164 m.). The Mediterranean coast is 117 m., that

single-chamber assembly elected for 4 years by a system of pure proportional representation. The leading party has been the *Mapai* (Labour) with about a third of the seats, and it shares the ministries with a coalition of *Mapam-Achdut Avodah* (Extreme Socialists) and *Mizrachi-Hapoel Haamizrahi* (Religious). Other main parties are *Herut* (Nationalist), General Zionists (Conservative), and Communist (mainly Arab). The official language is Hebrew, but Arabic is also used in the *Knesset*, in public documents,



State of Israel: Government Press Division

#### ISRAEL: TREE NURSERY

of the Red Sea 6 m., and of the Dead Sea 35 m. Pop. approx. 1,800,000 of whom 1,800,000 are Jews, 140,000 are Muslims, 50,000 Christians, and 16,000 Druses. The cap. is Jerusalem (I. sector, 160,000); the other main towns are Tel-Aviv-Jaffa (400,000), Haifa (160,000), Netanya (30,000), Nazareth (22,000), Ramle (21,000), and Lydda (18,000). I. is a member of the U.N. and of other international bodies.

I. is a democratic rep. without any written constitution, but with a number of fundamental laws. These relate to the presidency (Itzhak Ben Zvi, succeeding Dr Chaim Weizmann (q.v.), elected 8 Dec. 1952), the Law of Return, giving every Jew the right to immigrate, compulsory education, and sex-equality. The President is elected by the *Knesset* (Parliament) for a 5-year term. The *Knesset* is a

coins, and stamps. Immigration 1948-55 totalled 800,000, the bulk having entered between 1948 and 1951. I. is highly militarised, the army being recruited by compulsory service of 2½ years and estimated at 250,000. Women are subject to conscription. There is a small navy and an air force. There is no state religion, but the Jewish dietary laws and the Sabbath and holidays are publicly observed (e.g. cessation of railroad and other public transport and closure of places of entertainment). Religious courts have jurisdiction over matters of personal status. There is a ministry of religions which also deals with Muslim and Christian affairs and with the maintenance of the Holy Places. There are sev. institutions of higher education, including the Heb. univ. at Jerusalem, the recently founded religious Bar-Ilan Univ. at Tel-Aviv, the

Institute of Technology at Haifa, and the Weizmann Institute of Scientific Research at Rehovot.

**Agriculture, industry, trade, finance, and communications.** Although Palestine had a reputation for fertility in the O.T., cents. of war and misrule reduced large areas to desert and swamp. Under the Brit. mandate and subsequently the trend was reversed by the enthusiastic efforts of Jewish immigrants, most of whom had no previous experience of agric. work. There are 4 main regions: (1) *Galilee*—cereals, mixed farming, olives, and tobacco. (2) *The Emek*—varied crops; high intensity of cropping; bananas, and fish-breeding. (3) *Coastal plain*—citrus fruits, vegetables, mixed farming, and poultry keeping. (4) *The Negev*—mixed farming, subject to irrigation, and ground-nuts. About a quarter of the agric. workers belong to collective farms (*Kibbutzim*). Industry began under Brit. rule. By 1939 there were 23,000 industrial workers. The Second World War gave an impetus to industrial development because of the demands made by the allied armies. Heavy industry is mainly concentrated in the Haifa area and there is some light industry around Tel-Aviv. A wide range of products is manuf., including chemicals, metal products, textiles, plastics, leather goods, glass, ceramics, building materials, tools, precision instruments, polished diamonds, and electrical goods. The main mineral resources are in the Dead Sea, with a factory at Sodom on the SW. coast. Potash, phosphates, bromine, and salt deposits are worked. In 1955 oil was struck at Heletz in the N. Negev, and about 7000 barrels a day are produced. The trade union movement is extremely powerful, controlling much of the economy through various enterprises and co-operatives. Nearly all the workers are affiliated to the General Federation of Jewish Labour (*Histadrut*), which operates a social security scheme and a health service. There is also an Arab trades union council. Although the export trade is strongly encouraged, there is a heavy adverse trade balance, the imports in 1955 at I.£120 million exceeding exports by I.£90 million. The deficit is made up by dollar loans, by Ger. reparations, and by contributions from overseas Jewish communities. The Israeli £ has had to be devalued and stood in 1956 at I.£5.04 to the £ sterling. Before the completion of the line to Beersheba in 1956, the railway system had 230 m. of track. New roads have been built to Beersheba, Sodom, and Elat (the Red Sea port). In 1955 the merchant fleet had 30 vessels of 108,000 tons. I. National Airlines (*El Al*) run services to Europe, England, the U.S.A., and S. Africa. The main airports are at Lydda.

**History.** (For events leading to the estab. of I. see PALESTINE and ZIONISM.) Although the Brit. mandate did not end until 15 May 1948, there was a virtual state of war from Mar. between the unofficial Jewish forces (*Haganah* and *Irgun*) and local Arab bands as well as the Transjordan Arab Legion. The main

fighting was for the control of the road between Tel-Aviv and Jerusalem, which the Jews succeeded in keeping open at great cost. On the other hand, a group of Jewish settlements S. of Jerusalem was destroyed by the Legion. The Jews gained complete control in Haifa, Jaffa, Safed, and Tiberias. On 14 May the state of I. was proclaimed and recognised by the U.S.A. and the U.S.S.R. There followed nearly 4 weeks of fighting between I. and Egypt, Transjordan, Iraq, Syria, and Lebanon, until a 4 weeks' truce was arranged by the U.N. on 11 June. The Egyptian advance on Tel-Aviv and Jerusalem had been halted on a line from Ashdod to Bethlehem. In Jerusalem there was heavy fighting—the Jews lost their foothold in the walled city, but retained the Arab suburbs in the S. and W. A Jewish force was isolated on Mt Scopus. Along the road to Tel-Aviv the Arab Legion could not be dislodged from Latrun, but the Jews built a new road and water pipe-line to supply Jerusalem. The Iraqi, Syrian, and Lebanese invasions failed.

With the resumption of fighting on 9 July, it was seen that the Israeli forces had been reorganised and re-equipped with help from Czechoslovakia. Lydda and Ramle were captured from the Legion and central Galilee from a mixed Arab force. The truce was renewed on 18 July, but in spasmodic fighting down to 7 Jan. 1949 I. captured the rest of Galilee and the whole Negev (making an incursion into Sinai as far as El Arish). Unavailing efforts at a settlement had been made by the U.N. mediator, Count Bernadotte. He was murdered in the Jewish sector of Jerusalem on 17 Sept. 1948. His successor, Dr Bunohe, was able to procure armistice agreements between I. and the Arab states (except Iraq, which withdrew its troops from Palestine). The mandatory boundary became the frontier between I., Syria, and Lebanon. Palestine was effectively partitioned between Egypt, Jordan (Transjordan), and I. Egypt held a narrow strip between Gaza and the old border; Jordan took Samaria (the 'triangle') and part of Judea; the remaining four-fifths of Palestine was retained by the victorious Israelis. The armistice agreements, the last of which was concluded with Syria on 20 July 1949, left unsolved most of the problems occasioned by the estab. of I. The Arab states refused to recognise the existence of I. and imposed an effective economic boycott. Egypt in particular closed the Suez Canal to I. shipping, and blockaded Elat. The oil pipe-line from Iraq to the Haifa oil refineries remained cut. Incursions into I. across the long frontiers by infiltrators and saboteurs made peaceful life impossible, but the savage reprisals undertaken by I. in no way discouraged these attacks. In Oct. 1956, after the union of the military commands of Egypt, Jordan, and Syria, I. invaded Egypt and conquered the whole Sinai peninsula and the Gaza strip. This resulted in Anglo-Fr. armed intervention, followed by the

arrival of a U.N. force in the area. By Jan. 1957 I. had withdrawn from much of the ter. conquered in Oct.-Nov., but she was insisting that guarantees safeguarding her navigation rights through the Suez Canal and in the Gulf of Akaba must precede any complete withdrawal.

Among the sad effects of war was the flight or expulsion of a large number of Arabs from their homes in I. Their numbers have been variously estimated, probably about 700,000. Most of them are in Jordan or at Gaza, supported by a U.N. relief grant. Their places have been taken by an even larger number of Jews.

socialism has in practice been accepted by all the parties, whatever their theoretical views. Internal controversy has centred mainly on religious matters. Although the religious political parties have never polled more than 15 per cent of the votes in a general election, they represent a majority of the religious Jews in the country. By adroit manoeuvring, the religious parties have succeeded in gaining a considerable victory over secular Zionism as their price for remaining in the coalition, and have secured the public observance of Judaism in all aspects of state activity. On the other hand, many



*State of Israel: Government Press Division*  
COMMUNAL HOUSES IN NORTH TEL-AVIV

In the process of immigration almost the entire Jewish communities of Bulgaria, Yemen, and Iraq were brought to I., and large numbers came from N. Africa and E. Europe. The physical and moral problems of integration have taxed to the full the resources of I., but it is realised that the only hope of continued survival of the state rests in the building up of the pop. As a result of the new immigration, the predominance of the European Jews must eventually be lost, but so far the leading positions in the state have been occupied by the better-educated W. elements. In the Cabinet, which has, with one short break, been headed by D. Ben-Gurion, only one oriental Jew has held office. The amalgamation of the scattered people of I. will be one of the most remarkable features of this cent.

In view of the gravity of the political and economic situation, state-controlled

of the leading personalities in I. are not observant Jews. They have often expressed impatience with the slowness of Orthodoxy to grapple with the problems of a modern state. Liberal and Reform Judaism, which is popular in some W. countries, has scarcely obtained a foothold in I., where the Orthodox rabbinate remains unchallenged. The non-Jewish communities in I. enjoy complete religious freedom.

The present position of I. is extremely precarious. Surrounded by hostile nations, growing ever stronger in their determination to destroy her, I. has few friends in the world and no alliances. Quite apart from the Arab group, most of Asia regards I. as a W. intruder. The U.S.S.R. originally supported the estab. of I. in order to embarrass Britain, but now encourages the Arab states to destroy I. in exchange for prestige and power in the Middle E. The

W. powers cannot support I. without endangering their oil supplies and passage through the Suez Canal.

See G. de Gaury, *The New State of Israel*, 1952; H. Sacher, *Israel: the Establishment of a State*, 1952; *The Israel Year Book: The Jewish Year Book*.

**Israëls, Josef** (1824-1911), Dutch painter, b. Groningen of Jewish parentage. For 2 years he worked in Paris under Picot, and soon afterwards he settled down at The Hague, where he made his home for life. It was during a convalescence passed in the fishing tn of Zandvoort that the poignancy of the poor's suffering and the tragedy of life were first vividly revealed to him: henceforth his pictures 'were painted with gloom and suffering,' and became a sensitive and artistic expression of his compassion for the toiler. I. has truly been called the Dutch Millet, although he emphasised the shadow rather than the light. Among his masterpieces are 'The Zandvoort Fisherman,' 'Village Poor,' 'Shipwrecked,' 'Cradle,' 'When We grow Old,' 'The Widow,' 'The Bric-à-brac Seller,' and 'Between the Fields and the Seashore.' See J. Veth, *Josef Israëls*, 1904.

**Israfil, or Israfeel**, according to the Mohammedan belief, will sound the last trump from the Temple rock at Jerusalem, calling men to judgment.

**Issoire**, Fr. tn, cap. of an arron., in the dept of Puy-de-Dôme, near the confluence of the Couze and Allier. It was sacked by the League during the religious wars of 1574-7. There is a beautiful Romanesque church. Lace, cotton goods, and machinery are manuf. Pop. 7100.

**Issoudun**, Fr. tn, cap. of an arron., in the dept of Indre. It has copper foundries, tanneries, manufs. of agric. implements and manures, and quarries of lithographic stone. Pop. 12,600.

**Issue**: 1. In law, offspring or lineal descendants of any degree. In Eng. law the term is peculiarly appropriate to the descent (see INHERITANCE) or grant (q.v.) of real property, whether by deed or will. Before the Wills Act, 1837, a devise (i.e. grant by will) 'to A and his heirs, but if A die without issue, then to B and his heirs' was construed to mean that A's estate (q.v.) should descend to A's I. in tail (see ENTAIL), i.e. as long as I. remained, when the gift went over to B and his heirs. But the Wills Act expressly enacts that the words 'die without issue' should be construed to mean die without I. living at the death (i.e. of A in the above example) and not an indefinite failure of I. The Settled Land Act, 1882, made a further change, the effect of which is that as to testators dying after 1882, any child of A who has attained 21 is free to retain or sell the land at his pleasure.

2. In the language of pleading means some definite proposition of law or fact asserted by one party and denied or 'confessed and avoided' (see CONFESSION AND AVOIDANCE) by the other, concisely setting forth the points on which both

parties desire the verdict of a jury or the judgment of a court. To 'join issue' means in effect to deny or traverse a proposition in the other party's pleading, upon which joinder no further pleading is necessary. Where the parties are agreed as to the questions of fact to be decided between them, they may, before judgment, by mutual consent, obtain an order from a master to go to trial upon such questions without formal pleadings, the question being stated in what is technically termed 'an issue.' The meaning of I. in Scots pleadings is not dissimilar.

**Issus** (modern Aïsse), tn in Cilicia, near where that prov. adjoins Syria. Here, in 333 bc, Alexander the Great inflicted a crushing defeat on the Persians under Darius Codomannus. Vast treasure and the royal family fell into the conqueror's hands.

**Issy-les-Moulineaux**, Fr. tn in the dept of Seine, a SW. suburb of Paris. A building in the rue Ernest-Renan has connections with Fénelon, Bossuet, and Ernest Renan (qq.v.), and stands on the site of the château where Margaret of Valois (q.v.) d. There are chemical, textile, and cement manufs., and breweries. Pop. 40,000.

**Issyk-kul'**, or Issikul (Kirgiz 'warm lake'), lake in Russian Central Asia, in the I. Region of the Kirgiz S.S.R., is 5000 ft above sea level, and covers an area of 2300 sq. m. It is fed by many streams, but the surface is becoming smaller. The water is salt, and contains a large quantity of fish. On the S. shore stands the tn of Przhëvsk (Karakul).

**Istakhr**, see PERSEPOLIS.

**Istanbul** (formerly Constantinople, anct Gk *Kōnstantīnopolis*, 'the city of Constantine'), until 13 Oct. 1923 cap. of Turkey, when it was superseded by Ankara. The city stands on a hilly promontory of triangular shape, having the Sea of Marmora and the Bosphorus on the S. and E., and on the N. the Golden Horn, an arm of the Bosphorus. It is thus surrounded by water on all sides but the W., where a strong wall shuts the city off from the mainland. Like Rome, I. is a city built on 7 hills, 6 of them being separated portions of 1 long ridge. In 330 I. was erected by Constantine the Great on the site of the anct Byzantium, which dated from the 7th cent. bc. For 7 cents. it remained as the cap. of the Rom. Empire in the E. As 'New Rome' it was early important, and on the partition of the empire in 395 it became the seat of the E. emperors. Even before this time the new city had had to withstand assault, for in ad 378, after the defeat of Valens, the Goths had attacked it. Henceforth it was to do so on many occasions. Twice, in 616 and 626, it sustained onslaughts from the Persians, and twice again, in 668-75 and 717, the Arabs furiously but unsuccessfully attacked it. In 1203, and again in 1204, it was taken by the Crusaders, whose conduct on this last occasion brand them with disgrace. From 1396 to 1401 it was unsuccessfully besieged by the Turks under

Sultan Bajazet. Sultan Murad II attacked it once again in 1422, and it held out with the greatest difficulty. The end was near, and in 1453, after a long and heroic defence against great odds, the city of Constantine fell. As in the case of all great cities, I. has spread far beyond its original bounds, and may be said to include two originally quite separate from itself. The name I. is generally reserved for the part built on the promontory above described, and the suburbs are considered separately. These are: to the N. of the Golden Horn, Galata and Pera, with Tophane; to the E. of the Bosphorus, in Asia, Scutari and Kadikoi. Galata, of which

people has changed in the same direction. The streets are generally dull in appearance, almost all animation being concentrated in the bazaars.

Almost all the important architectural and antiquarian monuments of I. are to be found in the city proper. First and foremost among these comes the church of St Sophia (*Hagia Sophia*, Holy Wisdom), erected by Constantine, and rebuilt with additional magnificence by Theodosius (415) and Justinian (538-68). Though necessary repairs have been executed, it is the church of Justinian that we now have. The exterior appearance of the church is disappointing, but inside it is the most magnificent creation of Byzantine art. The architects were Anthemius (q.v.) and Isidorus of Miletus. The great oval-ended nave is 260 ft long by 107 ft wide, the central square being bounded by 4 huge piers, each 25 ft square. These are connected by semicircular arches, and support a dome 107 ft in diameter. E. and W. are other great semicircular spaces, each crowned with a dome. The ornament is extravagant in its beauty. Marbles of various hues are arranged to form intricate patterns, and mosaics appear here and there uniting the marbles. After the capture of I. by the Turks, 1453, St Sophia was turned into a mosque, and its Christian ornaments removed or covered up. Later it was converted into a museum. From St Sophia many other mosques were imitated, and it may be said to inaugurate a fresh type of architecture for these buildings. The greatest of the imitations is the mosque of Solymani the Magnificent, of which the effect has been said to be more imposing than that of the original. Of the 200 or more mosques scattered throughout the city those of Ahmet, Bajazet, and Mehmet II may be mentioned. An important monument of the ancient city is furnished by the remains of the Hippodrome, the centre of the Rom. life of the city. Here are to be found the obelisk of Thothmes III, brought from On in the reign of Theodosius, and the triple serpents column, once in the Temple of Delphi and brought to I. by Constantine. In 1453 the conquering sultan threw his mace at the 3 talisman serpents in the Hippodrome, which were supposed to protect I. against serpents, and broke the lower jaw of one, but refrained from doing further damage when he learned that the city would probably be devastated by an invasion of serpents if its protectors were destroyed. The chief Turkish antiquity is the Old Seraglio, occupying the whole SE. corner of the city. It was formerly the palace of the Sultan. It has 3 spacious courts, and around them are arranged the ancient buildings, one the church of St Irene, and one the old treasury, still containing vestments and arms of tremendous value. It is in the bazaars that the oriental spirit is strongest. These are arranged in rows, well furnished with most kinds of wares, but without any particular architectural features. The city is now easily accessible by rail and air, and there is good



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ST SOPHIA, ISTANBUL

the chief ornament is a lighthouse, is the great shipping, mercantile, and banking quarter, and was not united to I. until after 1453. Pera is the European residential quarter. Tophane is, or was, important for the cannon foundry from which it derives its name. Scutari (q.v.) is an important commercial and industrial centre. The city of I. is excellently situated, more advantageously perhaps than any European city but Naples. From the outside its appearance is most picturesque and imposing. At the taking of I. most of the churches were destroyed, and mosques were erected in the most prominent situations. Cupolas and minarets, with graceful curves and soaring spires, combine with lofty cypresses to give the city an air of unique grace, and to invest it with the mysterious glamour of the oriental world. Within, however, the appearance is not so pleasing. The streets form a labyrinth of dirty, crooked, and ill-paved alleys, while most of the houses are low and are built of wood or rough stone. During the last 70 years the aspect of things has become much more European. The streets, under W. influence, have been widened and improved, and a European style of building has been introduced. The dress of the

communication with the rest of the Continent. It is connected with the central European railway system via Belgrade and Sofia. Exports are chiefly cereals, carpets, silk, wool, hides, and all kinds of refuse and waste materials such as horns, hoofs, skins, bones, old iron, etc. The manufs. of I. have all taken their rise during comparatively recent times, and only that of cloth-making has made any headway. During the years 1899 and 1900, handsome new quays were built on both sides of the Golden Horn, thus making an excellent harbour. Ships of the largest class find safe anchorage here, and there are fine graving and dry-docks. I. was the centre of the Islamic faith throughout the world, being the seat of the caliph until the office was abolished on 2 Mar. 1924. The climate of the city is generally healthy, but it is very damp, and liable to great and sudden changes of temp. The city was originally very unhealthy through inefficient sanitation, but this is now improved. There are electric trams in I. and its suburbs. The pop. is varied, presenting a most remarkable mixture of races, nationalities, faiths, and languages. It now (1955) totals 1,215,000. See BALKAN WAR and TURKEY. See G. J. Grelot, *A Late Voyage to Constantinople* (trans. by Phillips), 1683; C. du F. Du Cange, *Constantinopolis Christiana* (new ed.), 1825, and *Histoire de Constantinople sous les empereurs français*, 1826; W. J. Brodribb and W. Besant, *Constantinople*, 1879; E. Pears, *The Fall of Constantinople*, 1885; W. R. Lethaby and H. Swainson, *Church of Saint Sophia*, 1894; W. H. Hutton, *Constantinople*, 1900; W. Miller, *The Ottoman Empire and its Successors*, 1927; Sir H. Luke, *An Eastern Chequerboard*, 1934, and *The Making of Modern Turkey*, 1938; C. Stewart, *Byzantine Legacy*, 1948.

Istankeui, see Cos.

Isthmian Games, one of the 4 great pan-Hellenic festivals of antc Greece, dating from 581 BC, and held on the Isthmus near Corinth (q.v.) in spring of the second and fourth years of each Olympiad (see OLYMPIC GAMES). The I. G. were celebrated in honour of Poseidon (q.v.); owing to the attractions of the neighbouring city they were the most popular of such gatherings. The chief prize was a crown of wild celery, and some of the victors are commemorated in the fourth book of Pindar's *Epinikeia* (see PINDAR). See also NEMEAN GAMES and PYTHIAN GAMES.

Isthmus (Gk *isthmos*, neck), term used in geography to describe a narrow neck of land joining 2 larger portions otherwise separated by water. Thus the I. of Suez links together Asia and Africa at the head of the Red Sea; that of Panama connects N. and S. America; and that of Corinth the Peloponnesus with N. Greece.

Istib, see STIP.

Istrati, Panait (1884-1935), Fr. author of Rumanian origin. He travelled widely, working his way in considerable poverty. Encouraged by Romain Rolland (q.v.) he started to write. His first novel was pub. in 1923. Most of his novels have a

Rumanian setting and most have been trans. into English.

Istres, Fr. tn in the dept of Bouches-du-Rhône, on the W. shore of the Etang de Berre, 25 m. NW. of Marseilles. It has a naval flying school, and salt and soda works. Pop. 5700.

Istria, Dora d', see GHICA, HELENA.

Istria, peninsula in Croatia, Yugoslavia, between the Gulf of Trieste (q.v.) and the Bay of Kvarner (q.v.). It was acquired by Austria from Venice in 1797. At the end of the First World War the greater part of it was incorporated in Venezia Giulia (q.v.), Italy. The It. peace treaty



Yugoslav Embassy

GIRLS OF ISTRIA

of 1947, at the end of the Second World War, gave the peninsula, except for the free ter. of Trieste (q.v.), to Yugoslavia. It is hilly, and the coast is rocky and much-indented. The chief products are cereals, oil, wine, and live-stock, and there are fishing and boat-building industries. Two-thirds of the inhab. are Slavs, and the rest Italians. The prin. tns are Rijeka and Pula (qq.v.). Sev. is. off the coast are usually included in the term 'I.' among them Krk and Cres (qq.v.). Area about 1500 sq. m.; pop. 362,000. See T. G. Jackson, *Dalmatia, the Quarnero, and Istria*, 1887.

Istros, see DANUBE.

Iswar (Ishwar), Chandra (Vidyasagar) (1820-91), Indian author and social reformer, belonged to a Kulin Brahmin family of Bengal. One of the finest Bengali prose writers, he revealed the charm and beauty of his language in *The Exile of Sita* (1862). Soon after 1851 he became principal of the Sanskrit College of Calcutta. The Act of 1856, permitting



the remarriage of Hindu widows, was largely the outcome of his exertions.

**Isyllus**, Gk poet, whose name occurs in an inscription in the temple of Asclepius in Epidaurus. Probably lived at the time of the Gk invasion of Sparta after Chaeroneia (338 BC). The inscription (which consists of a prose dedication and 72 lines of verse in sev. metres) was ed. by P. Kavvadias (1885).

**Itacolomite**, or **Flexible Sandstone**, yellow sandstone of a porous nature found in Brazil. In the form of thin slabs it is slightly flexible; a bar of it, when supported at its ends, sags visibly, but returns to the straight when laid flat. This is supposed to be due to the sand grains which form the rock not being firmly cemented together. In England beds of flexible sandstone are found associated with the magnesian limestone of Durham.

**Itagaki**, **Taisuke**, Count (1837-1919), Jap. statesman, was prominent in the progressive movement which led to the overthrow of a feudalism long since antiquated. In Kochiken, Shikoku, he opened a school (the 'Rissishisa') where he taught his advanced and enlightened political views. The party of patriots, 'Aikoku Kō-tō,' acknowledged him as their leader, and he directed the policy of the 'Jyūto,' whose watchwords were 'liberty' and 'reform,' 1881-1900.

**Itajaí**, riv. in Brazil, flows through Santa Catarina, and enters the Atlantic at L., a small port for the Ger. colony of Blumenau. It. exports pine and mahogany. There is an airfield. Pop. 34,000.

**Italian Architecture** was the most important in Europe, and indeed in the world, during the first 3 cents. of the Christian era; and again during the Renaissance, from c. 1450 to c. 1650. It was also notable in some stages of the Romanesque period, but lt. Gothic architecture is inferior in quality and quantity to that of France or England. Although Rome may have been founded in 753 BC, the earliest surviving buildings of any size are of the 1st cent. BC, and anything older is now generally described as 'Etruscan' (see ARCHITECTURE, 3). During those cents., however, a great deal of building was done in the various Gk colonies (collectively known as 'Magna Graecia') around the coasts of Sicily and S. Italy, where one can still see the ruins of many Gk Doric temples (see ARCHITECTURE, 2), all erected between c. 575 BC and c. 430 BC. In Sicily these include 3 unimportant temples at Syracuse, 6 at Selinus, 4 at Agriguntum; on the mainland there are 3 at Paestum, and 1 each at Metapontum, Locri, and Pompeii. This last example was erected c. 550 BC, but most of the other public buildings of Pompeii, including the large theatre, the basilica, the Stabian baths, and the temples of Apollo and Isis, are of the 2nd cent. BC, though the small theatre and the amphitheatre are of the following cent. By that time classical Gk or 'Hellenic' architecture had given place to 'Hellenistic' or 'Greco-Rom.' architecture, i.e. Gk architecture as modified and practised after c. 300 BC.

In AD 79 the tns. of Pompeii and Herculaneum were overwhelmed by an eruption of Vesuvius; but excavation of both sites during modern times has revealed the high standard of domestic life in these Greco-Rom. tns, and the delicacy of their decorations. The nature of Rom. architecture is described elsewhere (see ARCHITECTURE, 3) and its prin. examples are noted in the articles on the architecture of individual countries; so here it will suffice to mention only the prin. Rom. buildings surviving in Italy. Excluding Rome and its neighbourhood, they are: the theatre at Aosta, c. 40 BC; the Arch of Augustus at Rimini, 27 BC; the triumphal arches at Ancona, AD 113, and at Beneventum, AD 114-17; the amphitheatres at Verona, 290, Capua, and Pozzuoli; as well as that at Pompeii already mentioned.

This is a very short list, and one finds a similar concentration of surviving examples when one reaches the next period (see ARCHITECTURE, 4); for most of the early basilican churches were in Rome itself. They included the basilicas of St Peter (AD 330, completely rebuilt in the 16th cent.), St John Lateran (330, altered out of all recognition), St Agnes without the Walls (324, but rebuilt 625-38), St Paul without the Walls (380, destroyed by fire 1823, then rebuilt precisely as before); St Lorenzo without the Walls (a double church—one part built 432, the other rebuilt 578); the lower church of S. Clemente (4th cent.); S. Sabina (425). Most of these were originally founded soon after the Emperor Constantine's recognition of Christianity in 313, and all were of basilican type: consisting of an oblong aisled nave, usually with an E. apse and a W. narthex or vestibule. Besides this essentially Rom. 'basilican' type, there were a few circular churches, including S. Stefano Rotondo (470), the Baptistry of Constantine (430-40), S. Costanza (330), all in Rome; as well as the Baptistry at Nocera (350). This latter type of plan, with a central dome, came to be typical of Byzantine architecture. There are other examples at Ravenna, viz. the Tomb of Theodoric (530, not strictly a dome) and the remarkable church of S. Vitale (526-47) with its fine mosaics. At Ravenna, however, there are also 2 basilican churches: S. Apollinare Nuovo (493-525) and S. Apollinare in Classe (534-9). From 404 to 476 Ravenna, not Rome, was the cap. of the (W.) Empire. After a period of rule by Theodoric the Goth, it became the cap. again.

Then came the Lombard kingdom, during which 'Early Romanesque' or 'Lombard' architecture made its appearance. Originating in N. Italy, especially in Milan and Lombardy, it soon spread into Germany, Scandinavia, and elsewhere. Lombard churches are basilican in plan—usually with a crypt. They have round arches, a good deal of arcading used as external ornament, rather flat sloping roofs, picturesque *campanili* (q.v.), and often stone barrel-vaulting over the aisles. Following are the prin. Lombard and

Romanesque churches in Italy, up to the advent of the Gothic style, c. 1240: S. Pietro, Toscanella, 739; S. Maria in Cosmedin, Rome, 772-95; S. Ambrogio, Milan, 789-824 (but much altered since); S. Giorgio in Velabro, Rome, 827-49; Torcello Cathedral, 864; St Mark's, Venice, begun 976 (see also CAMPANILE); Pisa Cathedral, 1006-1113; S. Miniato, Florence, 1013; Modena Cathedral, 1089-1184; SS. Giovanni e Paolo, Rome, 12th cent.; S. Zeno, Verona, 1138; the Baptistery, Pisa, begun 1153; the Campanile,

derived from further E.; other features are of 'Saracenic' origin.

Following are the prin. It. examples. In Venice: the churches of SS. Giovanni e Paolo, 1234 onwards, and of the Frari, 1250-80; the Doge's Palace, 1309-1424, and the Ca d'Oro, Foscari, and Pisani palaces on the Grand Canal. In Florence (see ARNOLFO): the cathedral, 1292 onwards; the Campanile, 1334-87, by Giotto; S. Maria Novella, 1278-1350; S. Croce, 1294-1442; Or S. Michele, 1356-1404; the Bigallo loggia, 1352-8; the Loggia



THE CHURCH OF SANTA MARIA MAGGIORE, ROME  
A typical basilican interior.

E.N.A.

Pisa, begun 1173; the beautiful cloisters of St Paul without the Walls and of St John Lateran, both in Rome and both late 12th cent.; the W. front of Lucca Cathedral, 1204. In southern Italy and Sicily: the Abbey of S. Niccolò, Bari, 1087-1197; the collegiate church at Barletta; the cathedrals of Bari, Bitonto, Cefalù, Giovinazzo, Messina (destroyed by earthquake, 1908), Molfetta, Palermo, and especially Monreale in Sicily, built by the Normans 1174-82. In Italy, the home of the Rom. tradition, Gothic architecture never reached the standard of grace or grandeur that it attained in France or England, especially as regards boldness and logicity in buttressing and vaulting; but it was certainly picturesque in its way, as Ruskin convinced his Victorian disciples. Some of its cathedrals (e.g. Siena, Orvieto) have zebra stripes of black or red and white marble, a fashion

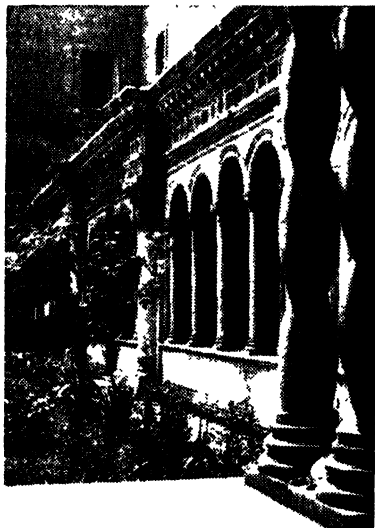
dei Lanzi, 1376; the Palazzo Vecchio, 1298; the Palazzo del Podestà, 1255. In Assisi: S. Francesco, 1228-53. In Milan: the cathedral, 1385-1435. In Orvieto: the cathedral, 1280-1310. In Siena: the cathedral, 1245-1380. In Pisa: the Campo Santo, 1278-83, and the beautiful S. Maria della Spina, 1323. In Bologna: S. Petronio, 1390-1437. In Padua: S. Antonio, 1237-1307. In Pavia: the Certosa, 1396-1481. The town halls of Siena, 1289, and Perugia, 1281. In Verona: S. Anastasia, 1261. The only old Gothic church in Rome is S. Maria sopra Minerva, 1280.

As explained elsewhere (see ARCHITECTURE, 7) the Renaissance of (Rom.) architecture began in Italy early in the 15th cent., and spread thence into other countries of Europe. Its 2 chief centres of origin were Florence, at that time the most enlightened culturally of It. cities,

and Rome, where most of the prin. monuments of antiquity were to be found. The leaders of the new movement in Italy are dealt with in separate articles, in which their various buildings are mentioned. For the 15th cent. see BRUNELLESCHI, ALBERTI, A. DA SANGALLO, senior, and A. SANSONO (Florence); BRAMANTE (Rome and Lombardy); GIOCONDO (Verona). For the 16th cent., besides some of those mentioned above, see AGNOLO, MICHELANGELO, A. DA SANGALLO, junior (Florence and Rome); PERUZZI (Rome,

Croce, and the 'Spanish Steps'—all of the 18th cent.—are on the border-line between Baroque and Rococo (q.v.).

After c. 1780 a marked decline ensued in the quality as well as the quantity of I. A. Neither the Gk nor the Gothic Revival had much effect in Italy. Among many ornate buildings erected during the latter part of the 19th cent., the most bombastic was the overpowering marble monument to King Vittorio Emanuele in Rome (1885-1911) by G. Sacconi. Under Mussolini's brief rule between the 2 world



E.N.A.

CLOISTERS OF THE CHURCH OF SAN PAOLO  
FUORI LE MURA, ROME



E.N.A.

THE CHURCH OF SANTA MARIA DELLA  
SALUTE, VENICE

Bologna, Siena); VIGNOLA, FONTANA (Rome); SANMICHELE, SANSONO (Venice); PALLADIO (Vicenza, Venice).

Towards the middle of the 16th cent. books on architecture began to appear, compiled by Vignola, Palladio, and Serlio (q.v.), in which rules of design according to the anc. Rom. Orders (see ORDERS OF ARCHITECTURE) were formulated. Concurrently with this trend towards regulated design, a more picturesque form of architecture was being evolved by Michelangelo, which resulted in the Baroque style (q.v.). For the chief Baroque buildings of Rome see BERNINI and BORROMINI. In Venice the finest Baroque building is the church of S. Maria della Salute (1631) by Longhena. There are other examples in Milan, and many in Turin (mainly by GUARINI and JUvara). Sev. other buildings in Rome, including the Fountain of Trevi, the façade of S.

wars, although many excellent new ones were laid out in the Campagna, and although the historical monuments of Rome were judiciously restored and isolated from the mean shacks which had grown over them like a fungus, some grandiose schemes in the city—such as the Foro Mussolini and the Exhibition S. of Rome—were vulgar as well as gigantic. In recent years the most important buildings have been the new Central Railway Station (1918) and the univ. (1930)—both in Rome; also the numerous fine blocks of flats in Rome and Milan, a branch of architecture in which Italy stands high among the European nations.

**Italian Art.** In the dawn of Christian art in the 4th cent. a common style was sought in architecture, sculpture, and painting, so as to give a common expression to the new religious ideas. The hist.

of the development of Gothic architecture in Italy establishes very clearly the gradual transition from Rom. ideas to Romanesque and Byzantine and ultimately to Gothic. See ARCHITECTURE, 5 and 6; BYZANTINE ARCHITECTURE; ITALIAN ARCHITECTURE.

*Sculpture and painting.* Until the great revival of plastic art took place in the mid 13th cent., the sculpture of Italy was decidedly inferior to that of more N. countries and much of it was actually the work of N. sculptors. Unlike the sculpture of the Pisani and later artists, the early figures are purely secondary to the architecture they are intended to decorate and they are the work of men who were primarily architects. Following the end of the 13th cent. the reverse was more often the case—as is exemplified by the sculptured decorations at the W. end of Orvieto cathedral. But during the 14th cent. Florence and neighbouring cities were the chief centres of lt. sculpture, and in the succeeding cent. Florence had become the aesthetic cap. of the world, having attained a pitch of artistic wealth and perfection rivalled only by that of anc. Athens, and indeed there is some similarity between Florentine plastic art of this period and that of 4th- or 5th-cent. Athens.

Niccolò Pisano's (q.v.) statuary is reminiscent of the mighty constructions of anc. Etruria and Rome and marks a break-away from Romanesque art. It heralds the reform in sculpture continued by Giovanni Pisano (q.v.), in whose hands the representation of the human figure attains a completeness which lt. painting could not acquire till a cent. later. In Niccolò's baptistery at Pisa sculpture is subordinated to architectural framework, but in the pulpit at Siena, made by him in collaboration with Giovanni Pisano, the sculptural effect is richer and more varied. In the fountain at Perugia, the finest flower of Giovanni's brilliant imagination, the influence of Niccolò has all but vanished and 'grave tranquillity has yielded to excited rhythm,' and these qualities are to be found in the followers of Giovanni Pisano—Giotto (q.v.), Andrea Pisano (q.v.), Orcagna (q.v.), who was famed as a goldsmith and painter as well as a sculptor, and Nino Pisano—sculptors of the 13th and 14 cents. Another of the most inspired creations of Giovanni Pisano is the 'Massacre of the Innocents' in one of the reliefs of the baptistery of Pisa. Well has it been said that this 'impassioned contemporary of Dante never created a greater or more dramatic work of art than these convulsed groups of mothers and children.' Andrea Pisano, originally an obscure goldsmith, became famous for his bronze bas-reliefs in the Florentine baptistery. In it he shows a mastery of the representation of movement and a regard for the unity and inter-relationship of the varied scenes of a story which introduce a fundamental reform in composition in which he was forestalled only by Giotto in his paintings. The later half of the *trecento* also exhibits

a nascent tendency towards reality, a tendency exemplified amongst the Veronese sculptors and particularly in the Venetians, Jacobello and Pier Paolo delle Masegne.

Great names in painting in the *trecento* are those of Pietro Cavallini (q.v.), Giotto, and Cimabue (q.v.), the last-named, as Dante records, being the first famous name in Florentine art. Cavallini was the herald of the *stil nuovo* in lt. painting and it was he who inspired Giotto. He was a master of the 'Roman school' and the greatest exponent of the classical style at the end of the 13th cent. Some of his finest work is to be seen in the mosaics of Santa Maria in Trastevere, Rome, notably in the panel of the 'Birth of the Virgin' and in his frescoes in the convent of Santa Cecilia, Rome. Giotto, who with Duccio di Buoninsegna (q.v.), was a pioneer in liberating the arts from the rigid medieval tradition, reveals the profound tranquillity, the dignity of the spirit of this first renaissance of poetry and painting. His figures, far from imitating the silhouettes of contemporary sculpture, recall the massive simplicity of primitive monuments, and their simplicity is enhanced by a corresponding simplicity of scenic background. His greatest paintings were destroyed, but in the Scrovegni chapel his frescoes reveal his power of capturing life, his sense of human character, and his keen dramatic instinct. Cimabue the Florentine continues the Romanesque tradition as may be seen in his work in the Uffizi Gallery, Florence, and the frescoes at Assisi. Other names of the 14th cent. are those of Simone Martini (q.v.), an artist with a rare sense of beauty of line, of colour, of graceful movement, and of human expression, Lippo Memmi and Ambrogio and Pietro Lorenzetti (q.v.) of the 'Sienese school,' a 'sort of aesthetic Lotus-land of painters.'

The Gothic style characterises the work of many It. painters at the beginning of the 15th cent. Among them may be mentioned Gentile da Fabriano (q.v.), whose most celebrated work is the 'Adoration of the Magi' in the Uffizi Gallery. He was not a great artist, but he inherited much of the Siena school's feeling for beauty of person, of line, and of colour, enhanced by a lively fancy which filled his compositions with jewels and flowers, rich brocades, and gentle laughing faces so representative of the court art of his time. Antonio Pisano (Pisanello) (q.v.) is, however, the greatest painter of this artistic movement. He displays a child-like pleasure in the minute presentation of natural objects. Other painters of this cent. were Fra Angelico, Masaccio, Paolo Uccello, Andrea del Castagno, Piero della Francesca, Melozzo da Forlì, Luca Signorelli, Antonio Pollaiuolo, Andrea Verrocchio, Filippo Lippi, Domenico Ghirlandajo, Giovanni di Paolo, Pinturicchio, Perugino, Botticelli, Mantegna, Cosimo Tura—a pioneer of the Ferrarese school—C. Crivelli, Francesco del Cossa—also of the Ferrarese school—Borgognone, Bramantino, Ercole de' Roberti, Antonello

da Messina, Cima da Conegliano, Giovanni Bellini, Gentile Bellini, and Carpaccio. These are the masters of those great artists who were to invest the succeeding cent. with the full splendour of I. A.—thus Leonardo da Vinci (q.v.) derives descent from Verrocchio (q.v.), who perfected the art of shading figures and endowing them with spiritual refinement; Raphael (q.v.) derives from Perugino (q.v.) and Piero della Francesca; Michelangelo (q.v.) from Bertoldo and Signorelli (q.v.), both, especially the latter, remarkable for energy and vigour in their treatment of the human figure and their reaction from impassiveness; Correggio (Allegri) (q.v.) from Mantegna, the founder of humanistic painting in N. Italy, Giorgione (q.v.) and Titian from Giovanni Bellini (q.v.), whose faces are invested with the clear light of innate goodness and calm. Fra Angelico's supreme quality is that of colour, and no other painter of the time employed tones of such purity. He has been described as 'the chief prophet in Italy of the beauty of holiness.' His designs are always exquisite, and sometimes, as in the Florentine frescoes, 'The Transfiguration' and 'The Marys at the Sepulchre,' they attain extraordinary grandeur. Masaccio (q.v.), who d. prematurely, assimilated scientific principles with the same natural ease with which he mastered the general construction and appearance of the human figure. In his fresco 'The Tribute Money' there is a mt range which, in Ruskin's judgment, was the first piece of real mt drawing in anet art. Uccello (q.v.) was a great craftsman, but he combined science with art to such an extent that it seemed to Vasari the art was overbalanced. Grandeur characterises the few surviving works of Andrea del Castagno (q.v.) as may be seen in the small 'Crucifixion' in the National Gallery. Of the Florentines of the 15th cent. Filippo Lippi (q.v.) is noted for his gift of colour in the grand manner. Portraiture assumes a more prominent place with Ghirlandaio, a pupil of Baldovinetti (q.v.). Perugino, like Pinturicchio, has an eye for undulating airy distances which seem to add an importance to his figures which they might not otherwise possess, as is exemplified by his 'Virgin with S. Bernard.' Piero della Francesca, a Florentine by choice, is the link between the old and new generations. His sense of spacious design was unrivalled by his contemporaries and make him a greater pioneer of landscape than Perugino. As a portrait painter he has no contemporary superior. In 'Baptism' and 'Nativity' the National Gallery has 2 of his best panel paintings. Signorelli was one of the most original masters of his time, whose energy found its outlet in the robust treatment of the nude, which he handled with a solid power only surpassed by Michelangelo himself. Antonio Pollaiuolo made a close study of artistic anatomy, as may be seen in the 'Martyrdom of S. Sebastian' in London. His 'Apollo and Daphne,' also in the National Gallery, proves him an admirable artist. Verrocchio's name survives chiefly as a sculptor, though he was also a

musician and goldsmith as well as painter, but we are never certain how far paintings ascribed to him are wholly his work and not sometimes the work of his great pupil Leonardo da Vinci. Botticelli, the great artist of linear design, is world famous for the languorous poetic beauty of his feminine types, but beneath this beauty lies a vigorous artistic energy. In all his best work he 'uses line with a sense of rhythmical quality which makes it seem a living thing' (Holmes). Leonardo da Vinci also had this quality but is inclined to confuse it with scientific considerations, whereas Botticelli uses rhythms for the sheer delight of creating them. His celebrated allegories 'Primavera' and 'The Birth of Venus' exhibit these qualities in their highest degree. Mantegna seeks the glamour of anet Rome in statues and reliefs, and most of his paintings have been described 'as a kind of coloured sculpture in the flat.' Typical examples are 'Triumph of Scipio' and 'Samson and Delilah' in the National Gallery. Material splendours are apparent in the work of Carlo Crivelli, many of whose paintings are in the National Gallery. Giovanni Bellini shows a wonderful and tender sympathy between man and nature, allied, however, to great artistic powers. Within the range of his devotional studies he shows so remarkable a variety of design, sense of form, and gifts as a colourist that his example dominated Venice for a quarter of a cent' (Holmes) and his translucent colour effects are the peculiar glory of the Venetian school. In Carpaccio (q.v.) of the same school the Venetian delight in pageantry found its most complete expression.

Pisa's dominance in sculpture ended with the 14th cent. and, as we have seen, passed to Florence. The moment of transition from Gothic to Renaissance art can be studied in the work of Lorenzo Ghiberti (q.v.), who vanquished Brunelleschi in the competition in 1402 for the decoration of the second door of the Florentine baptistery. Jacopo della Quercia (q.v.) of Siena, a near contemporary of Ghiberti, is a bolder innovator in his love for strong relief and vigour of subject. The last traces of the Gothic tradition of sculpture are abolished by Donatello (q.v.), who for half a cent. imposes his own art on Italy as a national art. His equestrian statue of the Gattamelata at Padua is one of the noblest in the world and only rivalled by the statue of Colleoni at Venice by Verrocchio and Leopardi. In bas-relief he creates almost impressionistic effects of Bacchic movement. He has no rival in representing the ebb and flow of a crowd. Other sculptors of this cent. include Luca della Robbia (q.v.), a maker of statuettes in Tuscany; Desiderio da Settignano, with a faculty for carving graceful aristocratic figures; Francesco di Giorgio Martini, who was architect, painter, and sculptor; and 3 Florentine artists, Bertoldo, Antonio del Pollaiuolo, and Andrea Verrocchio (already mentioned as painters) who almost outdo Donatello in attacking the problem of

vital movement, the passion of the Florentine Renaissance.

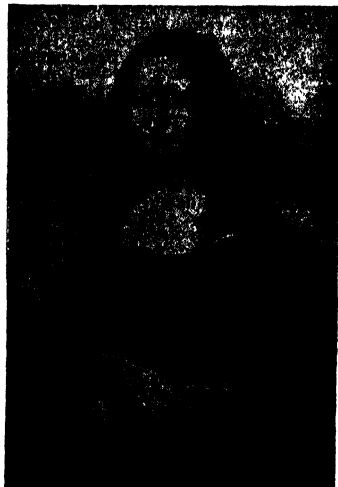
Among the 16th-century sculptors, Michelangelo dominates the field. He raised the sculpture of the modern world to its zenith of glory, yet at the same time he sowed the seeds of a rapidly approaching decline; for his imitators, such as Baccio Bandinelli (q.v.), Giacomo della Porta, Ammannati (q.v.), and others, copied and exaggerated his faults without the saving grace of a scintilla of his genius. 'The Lupiths and Centaurs' and 2 figures of 'Slaves' in the Louvre may be mentioned as examples of Michelangelo's power of dynamic expression through the nude human figure. Subtlety and refinement inform his splendid 'Pieta' group of figures in St. Peter's. As a sculptor Benvenuto Cellini (q.v.) strives after size, but with him, as with Sansovino and Alessandro Vittoria, the art of Michelangelo is reduced in grandeur, though it is not devoid of grace. The tomb of Giovanni Galeazzo Visconti, completed c. 1560, is a sumptuous example of the style of the Renaissance grown flabby from excess of richness and through abandonment of the simple purity of 15th-cent. art. The 16th cent., indeed, was one of transition to the state of degradation; yet it produced many sculptors of high ability, such as Giovanni da Bologna (q.v.), whose bronze statue of 'Mercury' in the Uffizi is a triumph of movement; while another of his works is the great fountain at Bologna.

In N. Italy in the 14th to 16th cent. terra cotta was adapted to the most elaborate architectural purposes. But the most important application of terra cotta in medieval Italy was to statuary—reliefs, busts, and groups of life-sized figures of the 15th and 16th cents. Some of the Florentine terra cotta sculpture of the 15th cent. is the most beautiful plastic work known in any medium, particularly that by Jacopo della Quercia and Donatello. The portrait busts in terra cotta are perfect models of Ionic sculpture. Groups in realistic style in the 16th cent. were produced by Caradossa (Ambrogio Foppa) for S. Satiro at Milan, and by Guido Mazzoni for churches in Modena.

The 16th cent. in It. painting was rendered glorious by a constellation of supreme artists whose names are headed by those of Leonardo da Vinci, Michelangelo, and Raphael, and include Titian, Giorgione, Allegri (Correggio), Veronese (Callari), Sebastiano del Piombo, Jacopo Tintoretto, Giambattista Moroni, and Caravaggio (see individual articles). It is true enough to say of Leonardo that 'his influence was so extraordinary that it is difficult to treat of any painter of his time without mentioning his name.' His interpretation of chiaroscuro and his solution of the problems of form and movement proclaim the scientific visionary looking into the heart of nature. Yet the dominion of 16th-cent. art properly belongs to Michelangelo, the artist of the prologue to the hist. of man in the Sistine Chapel, rather than to Leonardo. The

masterly power of his art can be comprehended only by long study, the study of all that the progressive Florentine artists had been striving to achieve since the time of Masaccio but was attained only by Michelangelo.

Raphael embodies the highest aspirations and finest culture of the Renaissance. He made a study of the frescoes of Masaccio and the reliefs of Donatello and of Michelangelo's sculpture and the work of Mantegna, and, next to Michelangelo, he was the most representative artist of his age. His frescoes in the Vatican are remarkable for a solemn grandeur of composition, wonderful portraiture, and great



LEONARDO'S 'GIOCONDA'

depth and richness of colour. Michelangelo, it is said, availed himself of the powers of Sebastiano del Piombo as a colourist for his own designs for a Pieta group at Viterbo in order to out rival Raphael. Titian, who was a pupil of Giorgione, reaches the heights of sensuous beauty and as a colourist is unrivalled; but spiritual beauty is often wanting; he was a realist and, as Ruskin says, no ascetic. His women's portraits have a rare charm and as a portrait painter he is admitted to be of the first rank. One of his most famous portraits is 'Homme au Gant' (in the Louvre). In this craft he undoubtedly influenced Velazquez. Classical myths and romantic idylls were the stuff of Titian's genius. Famous among the last named are 'Sacred and Profane Love' in the Borghese Gallery. In his later works he approaches nearer the classical Greek than does any other master of the Renaissance, while yet revealing a note of yearning that was alien to the Gk

conception. His celebrated Bacchanal 'Bacchus and Ariadne,' in the National Gallery, is one of the supreme masterpieces of all time. The mood of Giorgione, at once sensuous and contemplative, is distinct from Titian's, though he shares the Venetian richness of colour. Veronese (Caliari), as may be seen from his famous 'Marriage at Cana' in the Louvre, delights in the gorgeous in style and conception. Pomp and splendour of earthly pageantry, the vainglory of humankind, are manifestly the most obvious features of his typical banqueting scenes. Tintoretto's fame, apart from his power of portraiture, rests upon his vast imaginative compositions, with their wonderful conception of movement in depth. His Christ before Pilate is both massive and dramatic. Caravaggio led the reaction from the Eclectics—a naturalistic reaction from conventionalism and academic idealism analogous to the revolt in France under Manet and Courbet. Typical of Caravaggio's style are 'The Death of the Virgin' in the Louvre and the 'Flight into Egypt' in the Doria Gallery, Rome. His new realism and emotional lighting were of signal effect on the whole course of European painting. Notable painters of the Ferrarese school were Francesco Bianchi (q.v.) (Giovanni di Niccolò Luteri), Dosso and Battista Dossi (q.v.), and Benvenuto Tisi (called Garofalo, q.v.). Garofalo was strongly influenced by Raphael and by Dosso Dossi. His religious compositions, if monotonous and wearisome, are of high technical quality and his classical myths are somewhat too conventional, but his 'Mars and Venus' (Dresden Gallery) has charm.

Seventeenth-cent. Bolognese painting finds its chief representatives in the Caracci (q.v.), who founded the school of the Eclectics at Bologna, Barbieri (called Guercino, q.v.), Guido Reni (q.v.), and Sassoferrato; but the leading school of the cent. was at Naples, as illustrated by Giovanni Caracciolo, Mattia Preti, Salvatore Rosa (q.v.), the painter of rugged landscape, Luca Giordano (q.v.), and Cavallino. Bernardo Strozzi is amongst the best portrait painters of the time. Gian Battista Tiepolo (q.v.), in the 18th cent., is noted for his transparent atmospheric effects. In conception he derives from his contemporary Piazzetta his power of invention and decoration as revealed in the frescoes of 'Antony and Cleopatra' in the Palazzo Labia, Venice. Also of the 18th cent. is Canaletto (Antonio Canale, q.v.) the painter of the Venetian canals, and his fellow Venetian Guardi (q.v.). After the 18th cent. the arts in Italy entered on a less brilliant period. Antonio Canova (q.v.) was one of the neoclassicists who attempted to give renewed life to the art of I. sculpture, restoring it to that standard from which it had deteriorated when the instinct for classical beauty and austerity, of titanic invention and wellnigh superhuman energy, as embodied in the superlative genius of Michelangelo, had yielded to the exuberant mannerisms of the 17th and 18th

cents. In painting, Italy had ceded foremost place to France, though the talent of Giovanni Segantini may be noted.

Early in the 20th cent. It. artists made a striking new effort in the Futurist movement launched by Marinetti (q.v.). Its foremost adherent, Umberto Boccioni (d. 1916) expounded its creed in his *Estetica e Arte Futurista*. Futurism welcomed the swift movement and mechanical devices of the 20th cent. and was indeed an attempt to escape from the overwhelming prestige of Italy's past. The Metaphysical school which followed was short-lived. Its aims were set forth by Carlo Carrà in *Pittura Metafisica*, and its prin. exponents were Carrà and de Chirico. Chirico's pictures are a poetic product of the modern effort. Amadeo Modigliani (1884–1920) is internationally famous in portrait and figure painting.

The next outstanding figure is Giorgio Morandi (1890–). Though at first influenced by the Metaphysical painters, he has remained aloof from all movements. He is conservative without being reactionary, a fine technician whose work, however, lacks movement and employs subdued colouring to express his predominant sadness. Chirico and the Futurist Gino Severini (1883–) have diverged from their earlier course, the latter being known for large-scale mural decorations in Switzerland and Italy. A dominant personality in It. painting to-day is Renato Guttuso (1912–), a Sicilian. He, like his companions of the Rom. school, is concerned not with philosophical theories but with human experience in his own day. Guttuso's fierce realism is best seen in 4 works painted in 1948: 'The Mechanic,' 'The Washerwoman,' 'The Seamstresses,' and 'The Water-melon Stall.' In sculpture the 3 most interesting figures are Manzu (1908–), whose 'Cardinal' is in the Tate Gallery, the Sicilian Pietro Consagra, and Marino Marini (1901–), who has been described as 'probably the best of the younger sculptors in Europe to-day.' All 3 belong to the Realist school. See also ITALIAN ARCHITECTURE.

See M. Bryan, *Dictionary of Painters and Engravers*, 1903; J. A. Crowe and G. B. Cavalcaselle, *A New History of Painting in Italy*, 1903–11; E. G. Gardner, *The Painters of the School of Ferrara*, 1911; A. V. V. Brown and W. Rankin, *A Short History of Italian Painting*, 1926; G. Vasari, *Lives of the Painters, Sculptors, and Architects* (Eng. trans. reprinted in Everyman's Library, 1927); A. Venturi, *A Short History of Italian Art*, 1926; Sir C. Holmes, *An Introduction to Italian Painting*, 1929; T. Borenius, *Florentine Frescoes*, 1930; B. Borenius, *Italian Painting of the Renaissance*, 1930; F. Antal, *Florentine Painting and its Social Background*, 1948.

**Italian East Africa.** Name given by Italy in 1936, after her conquest of Ethiopia, to the ters. in It. occupation in E. Africa. They then comprised the former colonies of Eritrea (q.v.) and It. Somaliland (see SOMALILAND), and were divided into 5 provs., Eritrea, Amhara,

Galla, Harrar, and Somalia, the cap., Addis Ababa, being a separate dist. not included in any prov. The total area was 660,000 sq. m., and the pop. was estimated at 7,000,000. The whole of this colonial empire was lost in the Second World War in 1940-1.

**Italian East Africa, Campaign in (1940-1941).** The conquest of It. E. Africa—Eritrea, It. Somaliland, and Ethiopia, besides the recapture of Brit. Somaliland—was one of the most remarkable campaigns in the annals of African warfare. The lessons of mechanised warfare had been taken to heart; great distances over difficult mountainous country were covered with spectacular ease; the co-operation of the R.A.F. was effective to a degree; while the co-ordination of all the forces, operating from a dozen different directions, pointed to a highly creditable staff organisation. Imperial forces, comprising S. Africans, S. Rhodesians, Sudanese troops, the King's African Rifles, and the Royal W. African Frontier Force, together with Ethiopian patriot forces, all took part and, in the denouement, following the conquest of Eritrea some 3 forces were all advancing at great speed on Addis Ababa where the Italians had hoped to hold out long enough for the rains to save them. Yet for long, not the least important function of the Brit. forces was themselves to play a similar role and to hold in check large It. armies, while Wavell's forces were advancing on Cyrenaica (*see AFRICA, NORTH, SECOND WORLD WAR, CAMPAIGNS IN*). This accomplished, all the forces were set in motion, some advancing from the Sudan into N. Ethiopia and into Eritrea, others northward from Kenya and into S. Ethiopia, others across Ogaden and to Harrar, while yet others penetrated W. and SW. Ethiopia.

At first, however, following the fall of France, the Brit. forces, for lack of resources, were unable to do more than hold frontier posts, yielding them only after stubborn resistance; while Brit. Somaliland had to be evacuated, and it even seemed to many somewhat doubtful whether the British would ever be able to counter the main It. thrust against Alexandria and the Suez, the fall of which would have multiplied the difficulties of a campaign in It. E. Africa beyond conjecture.

The Italians began operations by bombing Berbera, cap. of Brit. Somaliland, and by attacking Brit. Moyale just inside the Kenya border, and, crossing the Ethiopian-Sudanese frontier, occupied more Brit. frontier posts. On 3 Aug. the Italians invaded Brit. Somaliland from Ethiopia. The colony was defended only by mobile motorised units of the Somaliland Camel Corps. On 11 Aug. the Italians made a general attack on positions covering Jugargan Pass. The Brit. staff decided that it was impracticable to defend Brit. Somaliland and more advantageous to make the enemy use up his supplies in what was, strategically, a wasteful enterprise—a policy which later

proved justified. The Italians were using 2 divs., complete with artillery and armoured fighting vehicles, originally intended to oppose the Fr. forces in Fr. Somaliland. The Brit. forces, although unreinforced, continued to resist with great determination all the way to Berbera. Eventually, however, the Brit. troops were evacuated from the colony.

On 19 Aug. R.A.F. bombers raided Addis Ababa for the first time. All through the campaigns against the Italians, whether in Cyrenaica or in E. Africa, the Brit. command adopted the sound course of bombing the enemy's planes on the ground or fighting them out of the skies, so that ultimately, when the Brit. turn came to advance, the Italians were hampered from lack of aircraft and of undamaged aerodromes, and indeed the process of destruction of machines continued right through the campaign, Brit. losses in planes and pilots being relatively slight.

There was now a lull in operations. Numerically the enemy was in a formidably superior position. But he met stout Brit. resistance, and where by sheer weight of numbers and metal he forced a way through, it was only to encounter a dogged opponent, who contested literally every foot of ground.

Over 2 months later Eden, Brit. secretary of state for war, toured the Middle E., while Smuts toured E. Africa, to inspect the Brit. defences. This was the preliminary to the turning of the tide, which began with the capture of Gallabat, on the Ethiopian-Sudanese border, which important position had been taken by the enemy in June. This capture was made by Brit. and Indian troops, with tanks and artillery, and with the co-operation of the R.A.F., the enemy being taken by surprise. At this period (Nov. 1940-Jan. 1941) the focus of interest was the battle of the W. Desert, Wavell's spectacular advance to Benghazi being facilitated by the fact that Cunningham's operations in It. E. Africa prevented the Duke of Aosta, Commander-in-Chief in It. E. Africa, from rendering Graziani any help.

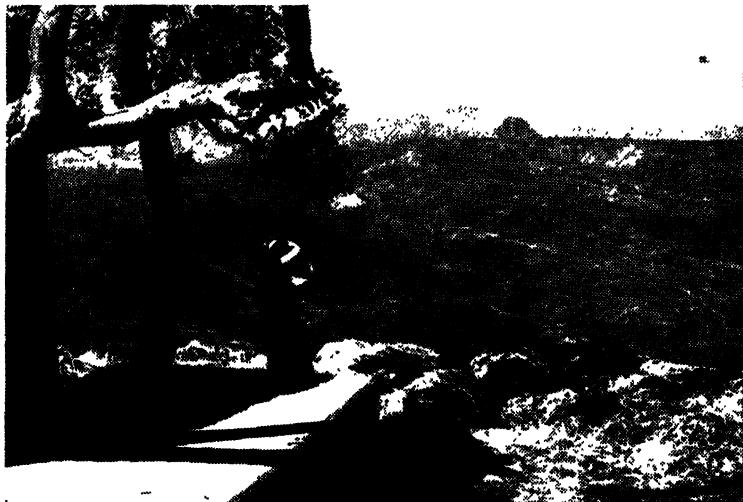
On 14 Jan. Haile Selassie (q.v.), who was now in Khartoum, announced that he would soon cross the Ethiopian frontier and lead an Ethiopian army against the Italians. The revolt, fomented by the British in that country, was now making great headway. The Imperial standard had been raised at Gijjam by Ras Mongasha and the war drums were rallying the Ethiopian patriots.

By now Brit. troops were successfully advancing into Eritrea, while Indian troops were marching over the Sudan frontier. A contingent of regular troops of a newly formed Ethiopian army went into action on the 22nd in the Sudanese-Eritrean war zone. Haile Selassie had actually crossed the frontier a week earlier, hoisting the flag of Ethiopia on his native soil in the presence of Brit. and Ethiopian troops. Keru and Alota, together with 600 It. prisoners and 2 guns, fell to the Brit. forces on 29 Jan. From



Kenya patrols had crossed the frontier at numerous points without meeting with the enemy. In Eritrea the Brit. attack was now concentrated on the Agordat-Barentu area. By the end of the month operations were developing on all African fronts—the Sudan-Ethiopian frontier, Kenya-Ethiopian frontier, Eritrea, and It. Somaliland—while revolt was spreading in Ethiopia. Agordat fell on 1 Feb., giving the British a junction of considerable strategic importance on the Red Sea railway. Throughout Feb. the enemy in Ethiopia, Eritrea, and It. Somaliland was

the head of an important motor road to Addis Ababa. Later in the month the imperial forces made a remarkably rapid advance in It. Somaliland. They took Mogadishu, the cap., on the 25th after a march more rapid even than that of the army of the Nile in Cyrenaica. This gave them the centre of a good road system and so demoralised the enemy that over 9000 of them surrendered. On the Kenya-Ethiopian border Ethiopian irregulars drove the Italians from their last footholds in the Brit. colony by taking both Brit. and It. Moyale, positions which had



*Imperial War Museum: Crown Copyright*

**ETHIOPIA: THE OMO RIVER GORGE**

A British officer studies Italian defensive positions seven miles away.

always in retreat save at Keren, a stronghold on which every device of military engineering skill had been lavished.

The imperial troops now laid siege to Keren. It was to prove the most costly operation of the whole campaign, but by 7 Feb. over 3500 prisoners had been taken, and wherever the enemy gave ground war material littered his track. There were now in simultaneous operation some 5 movements: the penetration of It. Somaliland by S. African troops; an advance in S. Ethiopia by S. Africans; an advance through the N. part of Ethiopia a patriot advance from the W. into Ethiopia and in SW. Ethiopia; and the attack by mixed troops on Keren. The important port of Kismayu (It. Somaliland) fell to the S. Africans on 15 Feb. Five days later the troops were across the Juba R., while other troops from that dominion took Mega in S. Ethiopia, an It. air base some 6500 ft above sea level and

proved almost as stubborn as that of Keren. On the first day of Mar. an important pass covering the approach to Keren was captured by an Anglo-Fr. force advancing from the N., the Fr. troops being Senegalese who had trekked across the continent to Port Sudan to help the cause of Free Frenchmen. Dagga Bur, 600 m. N. of Mogadishu, fell to the victorious imperial troops on 10 Mar., Harrar being their next objective. It. losses since the opening of the Somaliland offensive had now reached 30,000 prisoners, while practically the whole of It. Somaliland, a great part of Eritrea, and enormous supplies of water material had fallen to the Brit. forces.

Penetration into Ethiopia was now in progress on 12 fronts, including a thrust on Gondar in the N., a drive by patriot forces towards Debra Markos, the next goal after Burye; a Brit. advance on Harrar from It. Somaliland; a thrust from

the Sudan to Afodu; and other penetrations in the Blue Nile region of SW. Ethiopia. But time was nonetheless an essential factor in the general plans of the Brit. authorities. The longer Keren held out the greater the possibility of the rains saving the Italians. On 16 Mar., however, Brit., Indian, and Sudanese forces, strongly supported by the R.A.F., made a most determined attack on precipitous positions covering Keren and stormed 3 important heights 3000 ft high, under cover of well-directed gun fire and bombing. Reverting to the earlier days of Mar., the position was that the Brit. All-Africa column (Gold Coast and S. African forces) and Brit. and patriot Ethiopian forces were all converging on Addis Ababa. For the first 14 days of the month the All-Africa column averaged over 40 m. a day across rising uplands on Ethiopia's E. threshold. Other forces around Lake Tana were then nearer Addis Ababa, but the formidable barrier of the deeply canyoned Blue Nile retarded their progress. The Imperial Army from Eritrea was fighting at the immensely strong It. position of Keren, the biggest battle of the campaign. A trail of abandoned ammunition and material along the modern tarmac road marked the headlong flight of It. soldiers. The All-Africa column was cleaving 2 disorganised enemy divs, which were desperately trying to find a way back across the desolate Ogaden landscape. By mid Mar. the strategic position of Jijiga, 50 m. E. of Harrar, lay ahead of the All-Africa column. The question was whether the Italians would make a stand there or in the hills round Harrar.

Meanwhile on 18 Mar. Berbera was retaken as the result of a combined sea, land, and air operation by imperial forces. Soon the whole of Brit. Somaliland was recaptured, the It. occupation having thus lasted some 7 months. The significance of the rapid advance to Daggabur (600 m. N. of Mogadishu), towards Jijiga and Harrar, was that in this neighbourhood existed one of the chief passages into the great mountainous plateau known as the Ethiopian Highlands. The Italians hoped to retire to this mt fortress and hold the limited number of practicable inlets in the expectation that the coming rains would restrict Brit. operations to comparatively small columns. The series of operations in E. Africa was in its way as brilliant as the campaign of the W. Desert. If the army of the Duke of Aosta was less formidable than that of Graziani the natural difficulties of the terrain were greater. If the pace was slower, except for the rapid advance northward from the Webbi Shibelli in the direction of Jijiga and Harrar, the size of the ters, which formed the objective was far greater.

By 27 Mar., however, the road to Asmara was open to the victorious troops of the Imperial Army of the Sudan. The final attack was delivered after 14 days of fierce fighting, an attack which battered down the last remnant of enemy resistance and carried the Brit. troops

triumphantly into the tn. Harrar fell at the same time, and with this double success the British obtained possession of three-quarters of Eritrea and practically sealed the fate of the It. force left in what remained of Mussolini's E. African empire.

At the beginning of April more than half Ethiopia was in Brit. hands. From Asmara Platt's troops were clambering down mts 5000 ft high to capture Massawa, while another column was reaching up the road to Adowa. In the central part of the front Cunningham's troops were marching from Harrar and Dire Dawa along the 2 roads that converge at Mersa, 150 m. from Addis Ababa. In the S. the It. garrison at Soroppa, near Lake Rudolf, was surrounded by African troops and surrendered. The sole port now left securely in the hands of the Italians was Assab, for already Massawa was threatened, and the navy were closely watching it. The only considerable tns held by the enemy in the interior were Dessie, Gondar, and Addis Ababa. Gondar was all but cut off by Ethiopian patriots, who were pressing on round Lake Tana and the sources of the Blue Nile. Dessie was filling with retreating soldiers from Eritrea, who while streaming through the Green valley were subjected to a major bombing attack by the S. Africans. Revolt was now sweeping the country behind the It. lines.

The historic battlefield of Adowa now fell into Brit. hands and then the holy city of Axum, and on 9 April Massawa capitulated. In the whole country there were now left only more or less disorganised bodies of troops, groping their way towards Dessie, Gondar, and Jimma. Fierce fighting in the Kombolcha Pass, 14 m. S. of Dessie, was the prelude to the Brit. capture of this mt stronghold in the last days of April. But there was still a strong force of the enemy under the Duke of Aosta, at Amba Alagi, another mt stronghold. Here the Italians held out for nearly 3 weeks. By 14 May the enemy had been driven back by the S. Africans to the peak of Mt Alagi, where they had tunnelled galleries into the cliff faces and cut gun emplacements out of the rock. But there was one weakness in this almost impregnable stronghold. The long-prepared defences were intended to meet an attack from the N., and the S. Africans were piercing the vulnerable S. side. The siege of Amba Alagi reached its grimmeest stage on 14 May when a terrible artillery bombardment almost wiped out the It. forces. Some 10 days later the Duke of Aosta formally surrendered, together with some 19,000 prisoners. Thereafter there remained only small pockets of hopeless resistance. In only 4 months a well-equipped force of 125,000 Italians and 200,000 native troops of which 170,000 were infantry, with a considerable air force and 212 aerodromes, under an able commander, had been smashed and scattered. Of this great host the Brit. forces under Cunningham had captured about 190,000; 125,000 had deserted, leaving nothing remaining in

military formation, apart from one or two small bodies, numbering altogether 6000, who were soon to be rounded up. At no time did the Brit. forces on all the fronts in E. Africa, even after the arrival of reinforcements from India and W. Africa, approach the strength of the combined It. metropolitan and native armies. Yet in 4 months the imperial forces under Cunningham had conquered 3 countries and reconquered a fourth, totalling some 700,000 sq. m., captured 120,000 prisoners, 800 heavy guns, and 150 tanks, as well as thousands of motor vehicles, thousands of machine guns, and millions of rounds of ammunition. Most preconceived ideas of colonial warfare were abandoned. In this remarkable campaign sheer speed broke the Italians.

It. resistance did not end entirely with the surrender of the Duke of Aosta. The disorganised garrisons of scattered strongholds, particularly at Jimma, Debrî Tabor, and Gondar in N. Ethiopia, protected by the seasonal tropic rains, held out for some weeks. The It. commander of the garrison at Debrî Tabor, 60 m. E. of Lake Tana, surrendered early in July (1941), not long after the fall of Jimma, and with his surrender the sole important remaining garrison was that at Gondar, a strong natural position almost comparable with Keren. In the 'Battle of the Lakes,' the operations which virtually ended with the capture of Jimma on 20 June, and resulted in the elimination of It. resistance from a vast area SW. of Addis Ababa, the Brit. forces took over 30,000 prisoners and more than 100 guns. See *Abyssinian Campaigns: Official Story of the Conquest of Italian East Africa* (H.M.S.O.), 1943, and Christine Sandford, *The Lion of Judah hath prevailed*, 1955.

**Italian Front, First World War Campaign on,** Italy declared war on Austria-Hungary on 23 May 1915, but war was not declared against Germany until 23 Aug. 1915. On 25 May It. forces penetrated Austrian ter. in S. Tirol and the NE. corner of Venetia and along the Isonzo (q.v.). Gradisca was occupied within a few days and the crossing of the Isonzo promptly followed. On the W. flank progress was being made in the Trentino. Austrian posts on the Alps were taken by the Italians in rapid succession. At the end of May the frontier was crossed at Lake Garda at Riva (N. end of the lake). During the first week of June there was a stiffening of the whole line, and fighting became more serious. On 20 July the Italians gained a victory in an all-day fight on the Lower Isonzo. This developed into a series of conflicts on the Carso (q.v.). In Oct. the W. flank was improved by securing Mt Nodice which gave the Italians command of the Ledro valley. During the winter of 1915-16 the Austrians were preparing a counter-offensive in the Trentino under the command of Archduke Charles, with Field-Marshal von Hoetzendorf as his chief-of-staff. The attack was launched on 14 May and by 19 May the Italians were in retreat on the whole Trentino front and

the Austrians reached It. soil. In 10 days they had captured 24,000 prisoners and 250 guns. Asiago (q.v.) fell to the Austrians on 29 May, and although their flanks were held, their centre continued to advance. The Italians counter-attacked, and by 26 June had recovered a good deal of ground. Cadorna (q.v.), the It. commander-in-chief, launched an offensive on the Isonzo on 6 Aug. 1916, and captured the bridgehead at Gorizia, with 10,000 prisoners. Further progress westward continued throughout the month. On 16 Sept. the Italians advanced their right flank on the Carso, and throughout Oct. and Nov. continued to press the Austrians back on their NE. flank. In May 1917 a great offensive on the Isonzo was launched, progress being made chiefly N. of Gorizia, and with the help of Brit. guns a serious threat was made to the Austrians on the Julian front. Brit. monitors also fired on the rear of the Austrians from the Gulf of Trieste. In June the Italians made some progress in the Trentino. On 19 Aug. they resumed the Isonzo offensive mainly across the Carso, and by the end of the month the high ground SE. of Madoni was in their hands. About this time Ger. troops, under the command of Otto von Bulow, were being transferred to the Isonzo front, and attacked the Italians on 24 Oct 1917; the Italians were thrust back at Caporetto (q.v.), and the rout continued, until the Germans captured Udine on 29 Oct. This exposed the Italians on the Carso to the danger of envelopment, and a hasty withdrawal was made to the Tagliamento; but here the Germans forced a passage and the situation became critical. At this time 5 divs. of Brit. troops under Plumer arrived on the It. front. In Nov. 1917 Cadorna was succeeded by Diaz. The Italians defeated all attempts of the enemy to pierce the Piave front, so they turned their attention to the mt sector further N. Here they gained some points, but the presence of Brit. and Fr. troops prevented any serious loss. In May 1918 Lord Cavan succeeded Plumer in command of the Brit. troops. On 15 June 1918 the Austrians launched their final assault. They attacked on a 90-m. front with 40 divs. from Asiago to the sea. The Piave was crossed at Montello, and Venice also was threatened, but the sector held by the British stood firm against all attacks. Before the end of the month the Italians counter-attacked with the result that the Austrians were soon in full retreat. On 26 Oct. a great offensive was launched against the Austrians which turned the retreat into a rout and ultimate surrender. See L. Villari, *War on the Italian Front*, 1932, and G. L. McEntee, *Italy's part in winning the World War*, 1934.

**Italian Front, Second World War Campaigns of.** For the events leading up to this campaign see AFRICA, NORTH, SECOND WORLD WAR.

*Fall of Pantelleria, Lampedusa, and other small Italian islands.* Pantelleria, which, after 1937, was strongly fortified

as a naval and air base, surrendered to allied forces on 10 June 1943. This surrender was the first instance where a strongly defended enemy bastion, its garrison numbering 10,000, had been conquered from the air. The air attack began 13 days previously and by 10 June had swelled to a terrifying climax. Flying Fortresses, in greater numbers than ever previously used by the NW. African Air Forces, made repeated sorties throughout the offensive, which lasted from dawn to dusk. The air bombardment was supported by a naval bombardment. Lampedusa and the still smaller is. of Linosa, both in the Pelagie group just over 100 m. SW. of Sicily, held out only a very short time after the surrender of Pantelleria. Lampedusa was subdued after a naval bombardment followed by a heavy air attack and Linosa surrendered without a fight.

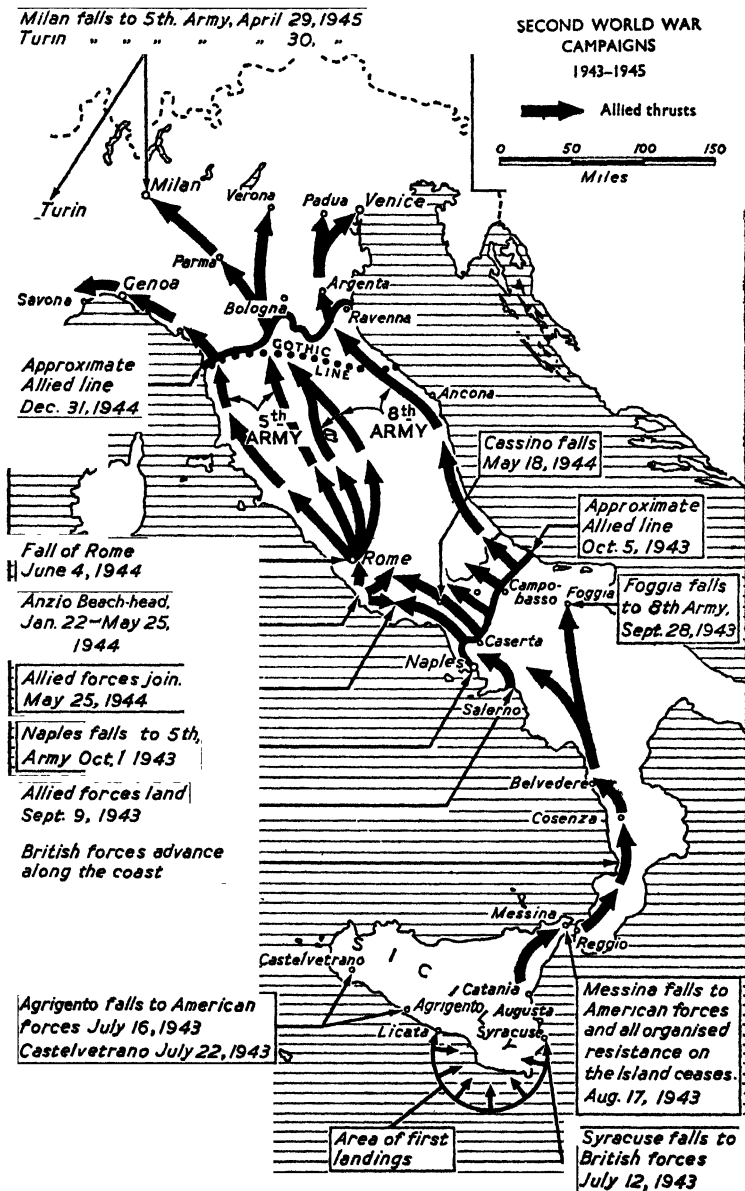
*The battle of Sicily (July-August 1943).* Anglo-Amer. forces under Alexander (q.v.) as deputy commander-in-chief, with Montgomery (q.v.) as commander-in-chief of the Brit. forces, in an armada of nearly 3000 vessels, invaded Sicily early in July 1943. The first stage of the invasion started on 10 July, soon after the occupation of Pantelleria and Lampedusa, when the allied air forces crippled the Axis air bases in Sicily. This was so effective that the second stage, the estab. of bridgeheads in the is., was easily accomplished and the landings, preceded and accompanied by terrific air assaults and broadsides of warships commanded by Adm.-of-the-Fleet Sir Andrew Cunningham, on a 100-m.-wide stretch of the coast from S. of Catania to Gela, met with only negligible resistance. The core of the invasion consisted of the seasoned troops of the Brit. Eighth Army, the Amer. Seventh Army, and Canadian forces (1st Canadian Infantry Div. and the 1st Canadian Army Tank Brigade). In the initial operations a large part was played by the troop-carrier command of the NW. African Air Force and by paratroops, American and British. Allied air forces acted throughout in close co-ordination with the sea and ground forces. Heavy day-bombing attacks were made on Gerbini, Trapani, Milo, and Sciacca. Brit. raids were made at night on Syracuse and Catania. The Americans took all the beaches assigned to them within 3 hrs of their first landing. The strongest opposition was met in the Cape Passero area by Brit. and Canadian forces. The landings generally were less costly in casualties than had been expected. The next task was to secure the possession of the harbours and centres of communication on the coast and close behind it. By 12 July Montgomery, with the Canadians on his left flank, seized the road and railway SW. to Pozallo in the extreme S. of the is., together with the port of Syracuse. In the other zone of operations—the Bay of Gela—the Americans, under Patton, seized Gela, Licata, and other places along the Syracuse-Pozallo road. Ragusa, Florida, and Augusta fell on 13 July and 2 thrusts

were now made from Syracuse and Augusta, northwards towards Catania and S.-westwards to the Palazzolo heights which dominate the plain of Catania. Most resistance came from 2 Ger. panzer divs., one facing the British in the E., the other the Americans in the S. The Allies soon penetrated in some sectors to a depth of 20 m. from the coast. By 14 July the Brit. Eighth Army was within 15 m. of Catania, but resistance was now obviously stiffening. Though the allied advance was speedy it was recognised by the commanders that, until the Catania plain and the Gerbini airfields were in their hands, resistance would be protracted, particularly in the mountainous regions of the NE. and around Etna. Considerable gains, however, were made on 15-16 July, the Eighth Army advancing sev. m. beyond Augusta, and its spearheads striking into advance units of a powerful Ger. force. Heavy losses were inflicted on the Axis forces in the W. sector, where the Americans advanced sev. m. across difficult country. Simultaneously with these operations, the heaviest combined air assault theretofore launched from N. Africa was made on Naples (17 July) by more than 500 aircraft, mostly from the NW. Amer. Air Force, part of the Neapolitan royal arsenal being destroyed. Agrigento and Porto Empedocle fell on 16 July. The following day Caltanissetta, on the railway linking Agrigento and SW. Sicily with Catania and Messina, was taken by Patton's troops, 20 m. to the E.; the Canadians took Piazza Armerina and both Americans and Canadians were now advancing on Enna, the most important junction in the is. The Eighth Army, which had the hardest task in the campaign, was now some 3 m. from Catania. On 19 July Rome was raided for the first time, when Amer. bombers attacked marshalling yards and railways. On 21 July Enna fell and Amer. and Canadian forces were now threatening to turn the whole enemy line. With the Eighth Army's estab. on 19 July of a bridgehead S. of Catania, the Axis forces now began a general though orderly retreat towards Messina. In the area S. of Catania, about 6 m. in width and 4 m. in depth, the Germans launched frequent counter-attacks despite mounting casualties. Casualties to Brit. forces were lower than had been anticipated. The allied advance in the W. half of the is. continued with great rapidity. Castelvetro, with its important airfield, originally built for patrolling the Sicilian channel, fell on 22 July. Marsala was then abandoned by the Axis troops. The threat to Palermo was accentuated, allied troops being now only 25 m. away, while other troops of the Seventh Army were nearing the Bay of Termini on the N. coast. Palermo fell to the Seventh Army on 23 July, the enemy being completely surprised by a rapid thrust by advanced troops of highly mobile forces. By this time the Seventh Army had taken 27,000 prisoners, 250 guns, and 10,000,000 rounds of ammunition. At this stage Mussolini resigned and the King of Italy

assumed supreme command of the It. armed forces, with Badoglio as the new prime minister. By the end of July the number of prisoners was 75,000, three-fourths of this total being taken by the Americans, and it was now clear that the battle of Sicily had entered its culminating phase—the struggle for Catania and Messina. The general offensive for these positions began to develop in Aug. following a week of intensive preparation during which large reinforcements of men and guns had been moved up to the front. The Brit. 78th Div. captured Centuripe after some very bitter street-fighting. The 51st (Highland) Div. advanced on their right. To the left the Canadians captured Regalbuto where the opposition was especially fierce. Further N. the Seventh Army captured Troina (2 Aug.), Cerami, and Capizzi. On the coast road the advance continued in the face of extensive enemy demolition. Brit. forces entered Catania early on the morning of 5 Aug. Following on the capture of the town of Bronte the immediate objective of the allied forces was Randazzo, on the NW. side of Etna and the key to the whole Axis defence. Ger. resistance had now, however, become more tenacious than ever. The enemy tactics relied above all on demolitions and minefields protected with well-sited machine guns, their hopes being to evacuate the bulk of their armies under cover of rearguard actions to the It. mainland. Randazzo eventually fell (13 Aug.) to the steady concerted allied pressure. The enemy had already been driven from most points N. of Randazzo, and Giarre and Riposto on the E. coast had been occupied. The Axis line in Sicily now collapsed and their forces were in full retreat. Messina fell on 17th Aug. to the Americans, who made contact there with the Brit. Eighth Army later on the same day. All organised resistance in Sicily now ceased. The Sicilian campaign had thus ended after 38 days and the allied forces stood 3½ m. from the It. mainland. Owing to the proximity of the mainland the Germans were able to run the gauntlet of air bombardment in the straits and to bring a large part of their troops away. The conquest of Sicily finally sealed the mastery of the narrow seas to the S. The total Axis casualties were 165,000. Of the 70,000 to 75,000 Germans on the is. at least 30,000 were lost. The total allied casualties were about 25,000—about 14,000 British and 11,000 American.

*Allied invasion of Italy—battle of Salerno—battle of Naples.* Prior to the actual landing on It. soil, Brit. and Amer. warships shelled roads, power stations, railways, and other objectives, particularly in Calabria. Stromboli and the Lipari Is. surrendered to Amer. naval forces at the same time. Some days later the Allies directed a great air offensive against the It. railway system to sever its S. arteries. The Brit. Eighth Army landed near Reggio di Calabria and advanced, without encountering much opposition, on Palmi. Then allied air

forces, operating in great strength, made a prolonged attack on the Naples area, the main effort being against airfields. All these formidable attacks, coupled with invasion, quickly had political repercussions, for on 8 Sept. Eisenhower announced that the It. Gov. had surrendered its forces unconditionally and an armistice was granted. The Fifth Army under the Amer. gen., Clark, including a Brit. corps, landed near Naples at 4 a.m. on 9 Sept. Soon 3 allied forces were advancing inland from each corner of a great triangle to seize the whole of the foot of Italy. The Fifth Army met intense Ger. opposition on the Salerno beaches in a struggle which was developing into a great battle for Naples. Part of Montgomery's Eighth Army was advancing northwards in Calabria. Other elements of the Eighth Army, having taken Brindisi and Taranto, were following retreating Ger. forces to the N. of those towns. The most desperate fighting occurred for the Salerno bridgeheads, the town itself having quickly fallen. The Germans hoped to hurl back the invaders into the sea and, holding the high ground overlooking the allied positions, were able to subject the Allies to a devastating fire from well-sited guns. But the bridgeheads from Salerno to Agropoli held firm, while ever more reinforcements in men and material poured into the beaches and also into more southerly ports, covered by naval and air forces. The enemy had the advantage in the air; for whereas the allied fighter planes of the NW. African Air Force had to fly from a great distance, the Ger. fighters could operate from near bases. Allied air forces, however, flew over 800 sorties on 13 Sept. to support the infantry and gunners who were fighting on the open crescent of the plain of Salerno without cover of vegetation or terrain against an enemy skilled in the defensive use of hills dominating almost every point of the bridgeheads. Meanwhile the Eighth Army, having seized Bari, Cosenza, and Belvedere, were making forced, if unopposed, marches to link up with the Fifth, from which they were now separated by 70 m. Throwing a powerful mobile force across the Apulian plain, they then captured the important air base of Foggia (28 Sept.), considerable casualties being inflicted on the Germans in the advance. At the same time Castelluovo was taken by the Fifth Army, whose tank spearheads were thrusting across the plain towards shattered Naples, while other forces were pressing on through difficult mountainous country N. of Salerno. It took the Fifth Army 6 days to pierce the Ger. defensive ring in the wild mts separating Naples Plain from the Gulf of Salerno. Shortly afterwards the naval base at Castellammare, 14 m. across the bay from Naples, fell, and the whole Sorrento peninsula was in allied hands. Naples fell on 1 Oct. to Clark's army. Bombing and Ger. demolitions had left deep scars on the city. The Germans had evacuated it in order to take up a very strong defensive position on the Volturno



R., and on the line of that riv. bitter fighting lasted for some time. Meanwhile, against growing resistance, the Eighth Army pushed W. from Termoli on the Adriatic coast. The Fifth and Eighth Armies were now in contact with each other, and the allied line ran from Naples through Caserta, Campobasso, and S. Martino to Termoli. By capturing the town of Capua early in Oct. the Fifth Army at length won a bridgehead on the Volturno R. But though they advanced to the entire W. course of the riv. in a single day, progress in the difficult country of the Apennines was slow. Towards the end of the month there was a general advance on the whole of the allied line, except at its extremities. It was evident that the line from Vasto on the Adriatic to Mondragone on the Tyrrhenian Sea, by way of Isernia and Venafro, would be strenuously defended by the enemy, for it represented the strongest position that could be held S. of Rome, and all roads now led to the cap.

Isernia, pivotal point in the Ger. defence and centre of their lateral communications, was captured by the Eighth Army on 4 Nov. The Germans were also driven off Monte Massico in the S., the allied armies making a substantial advance along the whole line from the Tyrrhenian coast to the knot of the Montagna de Matese in the centre of the Ger. line. Almost simultaneously the Eighth Army struck across the Trigno R. on the section of the front near the Adriatic coast; but there were strong prepared Ger. defences across the riv. 5 m. behind and much bitter fighting lay immediately ahead. Vasto, on the coast, was taken on 7 Nov. without a fight. Though unimportant as a harbour, it gave command of most of the road running SW. to Castiglione. Meanwhile the Amer. Fifth Army had advanced past Venafro in the centre and, on the extreme left, their patrols crossed the Garigliano riv. Casalbordino fell to the Eighth the next day, but only after heavy fighting, which, however, brought Montgomery's forces to the banks of the Sangro. Desperate Ger. counter-attacks to drive the Amer. troops N. of Venafro into the Volturno valley failed. The capture of Castiglione on 10 Nov. gave to the Eighth Army control of the whole road from Vasto to this important supply point in the Apennines. The flying of the swastika over the vil. of Castelforte, on the N. side of the now swollen Garigliano, symbolised the Ger. command's long obvious determination to stand and fight along the magnificent defensive positions on which it had now been thrown back. This defensive line is not a single line nor yet even a series of lines; rather is it a mass of easily defended hills or mts 36 m. in depth. The Fifth Army was now only on the approaches of these positions. Savage counter-attacks were launched to meet virtually every allied improvement of position. It was evident to the Allied Command that, in view of the enemy's defensive strength, even local attacks and breaches might require long planning for

what seemed to be disproportionate effort.

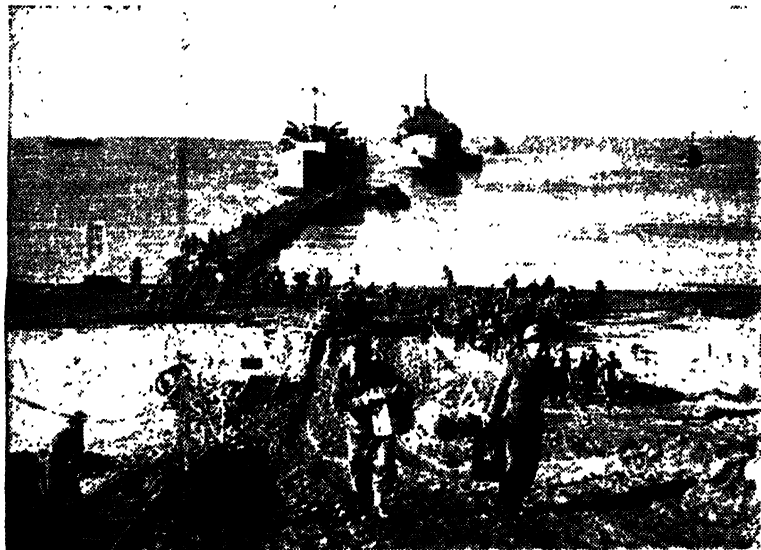
The Germans were, in fact, well placed in Italy. They now had 10 divs. on the central front facing the Fifth and Eighth Armies along the Garigliano-Sangro line, stretching across the narrowest part of Italy. Its centre, the central massif of the Apennines, is the highest and wildest country in the whole range. The Ger. hope was that, even if Montgomery broke the Sangro line and threatened Rome from the NE., they could at least hold him for a time in the mts between the 2 fronts. Altogether the Germans now had at this time (19 Nov.) nearly 50 divs. in Italy and the Balkans, an increase of from 10 to 15 divs. in the past month and obvious evidence of their realisation of the allied threat to the whole S. and SE. of Europe.

On 29 Nov. Montgomery, after a period of heavy rain and bogged conditions, began a new offensive across the Sangro, his attack being preceded by a demoralising air and artillery bombardment. Allied mastery of the air was so complete that in its initial attack the Eighth Army managed to gain positions along the outer edge of the Germans winter defence line. On 1 Dec. the Eighth Army made a general advance along its whole right flank and shattered the most important part of the Germans winter line in Italy. Lanciano, Castel di Frentano, and Casoli, on the lateral road from the Adriatic to the centre of Italy, had now fallen to Montgomery, whose advance was aided by the Tactical Air Force's devastating assault on Ger. positions and transport and their close support of the attacking troops. The Germans were now falling back in the Sangro sector, but the pursuit was hampered by the bad weather. In the ensuing days, in the W., Clark's Amer. and Brit. forces, in a desperate struggle in rainy weather and across waterlogged country, slowly but surely drove the enemy from his strongly fortified positions on and around Monte Maggiore and Monte Camino. But the Germans fought grimly to defend their vital defences along the road to Rome. In the E. the Eighth Army, despite a deluge of rain, crossed the Moro R., Canadian troops securing positions N. of it, including Ortona.

*Battle of the Garigliano crossing.* Thereafter, for 5 weeks, there were no marked changes in the respective positions of the opposed forces. But on 13 Jan. Brit. troops of the Fifth Army eventually crossed the Garigliano in the Tyrrhenian coastal strip in face of fierce yet ineffective Ger. resistance. On the next day very hard fighting developed, particularly round Minturno, Castelforte, and Suio vils. The destruction of bridges and the sowing of innumerable landmines hampered progress. In the attack on a 7-m. front from Minturno and Castelforte cruisers and destroyers of the Royal Navy bombarded shore positions in the Gulf of Gaeta. Initially successful seaborne landings were made on 22 Jan. by Fifth Army troops S. of Rome near Nettuno

and Anzio only 32 m. from Rome, the troops advancing well inland before meeting any resistance. The Germans, far from expecting such a move, had sent strong reinforcements, including their best motorised Panzer Grenadier divs. from the Rome area, S. to the Fifth Army front, where by then they were believed to have 100,000 men. The simultaneous Allied air offensive was directed against the ring of airfields round Rome and then on rail and road communications radiating northwards from the cap. Along the

the flank of the Ger. position on the Cassino front and cut the lines of communication to Rome. When, therefore, in the first few days hardly any opposition was met, it seemed possible that the Ger. commander, Kesselring, must begin a general withdrawal. Alexander, however, found it necessary first to consolidate his position on shore, but before he could do so the Germans had found time to concentrate a powerful army in the Alban hills overlooking the beachhead, bringing substantial reinforcements from great



*Imperial War Museum: Crown Copyright*

**ANZIO: MEN OF THE 2ND INFANTRY BRIGADE LEAVING LANDING CRAFT, 22 JAN. 1944**

Garigliano valley advancing Brit. forces repulsed heavy Ger. counter-attacks between Castelforte and Minturno (22 Jan.). Even by the 25th no effective resistance to the landings had been met and still more troops and supplies poured into Nettuno. But to the S. the Germans launched still more violent counter-attacks against the Fifth Army's main front in the Garigliano and Rapido Rr. area, most of these onslaughts being hurled back with heavy loss to the enemy, particularly around Minturno. There were also violent struggles for the commanding position of Monte Croce, N. of the important and hotly contested tn of Cassino. By 29 Jan. the Amer. forces had crossed the Rapido.

**Battle of Anzio.** After the Anzio-Nettuno landing had been successfully made, it seemed that sea power, despite the loss of 2 cruisers and 2 landing craft, had intervened with decisive effect to turn

distances. An allied advance across the Apian Way met with stiff resistance, and on 3 Feb. the Germans opened their first major attack on the beachhead. About 12 Feb. the initiative passed for a brief space to the Allies when Brit. troops advanced near Carroceto; but 4 days later Kesselring resumed the assault with a furious attack on a narrow front along the Anzio-Albano road. Deep penetrations were made in the Allies' position, but after some days of exceptionally bitter fighting this second Ger. attack also commenced to falter. In the ensuing week of bad weather Kesselring regrouped his divs. and prepared to deliver his third attack. This was shorter than either of the first two, but it exceeded both in intensity. The main blow fell directly on the 3rd Amer. Infantry Div. The Americans were forced to yield some ground before the impetus of so tremendous a weight of



men and armour, but their counter-attack was soon launched, and by the next day they had regained all the ground won by the Germans. Meanwhile the line as a whole had held at the other points attacked so that by 1 Mar. the Germans were everywhere back at their starting-points, having inflicted heavy casualties, but having themselves also suffered very severe losses.

*General Alexander's attack on the 'Gustav' and 'Hitler' lines—fall of Cassino.* On the night of 11-12 May Alexander launched a new offensive on the grand scale. This offensive was really the opening of the general assault on Hitler's fortress of Europe, it being the Allies' intention to invade France within a month and Stalin's to attack along the entire E. front almost at the same time, so as to embarrass the Ger. High Command with simultaneous offensives in the W., S., and E. Alexander's offensive was delivered after an intricate regrouping of armies, the main weight of the Eighth having been brought across to the W. side while the reconstituted Royal It. Army (Corpo Italiano di Liberazione) took over the Adriatic sector. Having crossed the Rs. Rapido and Garigliano, where these formed part of the Ger. 'Gustav' line, the allied forces were soon assaulting the whole line with irresistible force. In their victorious advance they were given tremendous air support. Fr. forces made a spectacular advance on Ausonia and the vicinity, capturing Monte Majo, and opening a dangerous breach in the Gustav line, and disorganised the whole system of defences in this part of the enemy's line. The French were helped by a corresponding Amer. advance to the S. Meanwhile Brit. forces were advancing through the mouth of the Liri valley and threatening the Via Cassina and the Cassino position, while Polish troops had secured dominating positions NW. of the Abbey (Monte Cassino). San Giorgio was carried by storm. Meanwhile the Americans were pushing over further along the Applan Way and the W. coast. At the same time, with the capture of Pignataro by Indian troops of the Eighth Army, a substantial bridgehead was estab. on the N. bank of the Liri, and the Ger. grip on Cassino, the Via Cassina, and the Abbey was relaxing. Cassino tn eventually fell on 18 May to Brit. troops and the Abbey was captured by the Poles (see CASSINO, BATTLE OF). With the fall of these famous positions the Gustav line S. of the Apennines had ceased to exist. Farther S. the French captured Esperia, and the Americans, who had seized Formia, were now overrunning the Gaeta peninsula. So far some two-fifths of the Ger. Tenth Army, which was holding the main front, had been almost destroyed. The Aquino-Pontecorvo position was now the lynch-pin of Kesselring's defences, for it was the centre of vital road communications, which, if lost, would mean that the Allies might turn the whole N. part of the Hitler line. Hence Ger. resistance stiffened considerably and there were counter attacks against both the British and the French.

*Battle and capture of Rome.* A new turn was now given to the campaign by the sudden launching of a strong offensive by the Anglo-Amer. forces of the more or less dormant Anzio beachhead. This was in fact the second phase of Alexander's general offensive. The struggle now grew most intense: Fr., Polish, and Brit. troops were wrestling successfully with the dense and intricate Ger. defences of the Liri valley centred on Pontecorvo and facing repeated and desperate counter-attacks; while the Americans, meeting with slighter resistance, were overrunning the trackless mass of the Volscian Mts to the S. Near Borgo Grappa, on the coastal highway between Terracina and Anzio, the beach-head forces at length linked up with the main Fifth Army front, so that a single allied front now stretched right across Italy, separated from Rome by only 25 m. The whole of the Applan Way was now in the hands of the Allies. Allied tanks, supported by infantry, soon wiped out the last Ger. resistance in the centre of the heavily damaged tn of Cisterna, and Brit. troops broke through the defences about the railway station on 25 May. On the same day that Cisterna fell Pontecorvo was taken by Canadian armoured cars. That memorable day saw the whole original Ger. defence line shattered. Allied tanks were now massing with other strong concentrations in the coastal plain for a powerful thrust from the Applan Way to Highway Six (Via Cassina), Kesselring's supply route. All through this day tanks and infantry poured through the gap in the Hitler line near Pontecorvo, forcing the enemy to evacuate the tn and to swing back their line pivoting on the Aquino defences so that it now ran insecurely E. and W. on the S. side of Highway Six. The Ger. hold on the Via Cassina was now so precarious that the withdrawal of their divs. from the Liri valley was made due northwards instead of in the direction of Rome. Kesselring's forces were virtually split in two, one body retiring into the Apennines, the other into the Alban Hills, which latter constituted the last naturally defensible positions protecting the cap. from the S. Yet the Germans continued to make a stout, if ill-organised, resistance. Kesselring, in the endeavour to retain Rome, staked everything on the defence of the strongholds of Velletri and Valmontone, the two bastions of the Alban Hills. The last battle for Rome now began. Fierce fighting raged in the Alban foothills, with desperate counter-attacks by the Hermann Goering Div., succeeded in temporarily checking the Americans. S. of Campo Leone the Brit. forces made a substantial advance. NW. of Cassino New Zealanders were pressing onward to the important stronghold of Avezzano, through which ran Kesselring's vital escape route. Velletri was surrounded by 2 June after the Americans had taken Monte Artemisio. Velletri and Valmontone fell to the Fifth Army that day and the fall of Rome was imminent. The Fifth Army entered Rome, which

had suffered little damage, on 4 June, after some heavy fighting in the outskirts. The main objective of Alexander was, however, not the occupation of Rome; it was the destruction of the Ger. armies. Leading elements of the Fifth Army passed through Rome on 5 June and crossed the Tiber. Hundreds of heavy bombers joined the fighter-bombers in continuous attacks on the retreating enemy. Eighth Army infantry and tanks advanced along the whole line of attack. Civita Vecchia, the naval base 40 m. NW. of Rome, fell on 7 June, Viterbo and Tarquinia on the 9th. Further and further the Germans were being forced back E. of the Tiber. The advance on the right was slower, but the terrain was much more mountainous; but by the capture of Avezzano the Eighth Army gained control of the central Apennine sector, while on the coast Indian troops entered Pescara. Kesselring's line was now moving back across the whole width of Italy, swiftly in the W., slowly and steadily in the centre, and rapidly on the Adriatic.

After troops of the 7th Indian Div. had crossed the Pescara, and the town of Pescara had fallen, resistance on the Adriatic coastal sector grew less stiff; there was, however, greater resistance in the W., especially at Grosseto and in the centre around Terni. By now Ger. strength in Italy had been halved by Alexander's offensive. But Kesselring still had the equivalent of 12 and a half divs. left to fight, 3 of them fresh, including the 4th Parachute Div. About 70,000 men, or the remains of 8 and a half divs., were now (23 June) deployed on a line across Italy which ran through Chieti, S. of Lake Trasimeno, N. of Perugia, and to the Adriatic about 30 m. S. of Ancona. Heavy rains had given the Germans a respite and enabled them to recover equilibrium. Eighth Army forces on each side of Perugia were engaged in very heavy fighting, and it was apparent that the Germans had no intention of withdrawing from their strong positions between Lakes Trasimeno and Chiusi without an attack in force.

A Fr. force landed on Elba on 18 June and, with the support of allied aircraft and ships, soon occupied a large part of the is., which was important to the Germans as a submarine base. By noon on the next day resistance ceased, nearly 2000 Germans being captured.

*The Allied advance to the 'Gothic' Line.* The advance of the Allies to the so-called Gothic line involved sharp fighting in difficult mt. country, but by early July the Eighth Army had broken through the Ger. defences to the W. of Lake Trasimeno and in the direction of Arezzo, 20 m. N. of the lake. The Gothic line ran from Pisa on the Tyrrhenian coast to Rimini on the Adriatic; it had been powerfully fortified for a year past, because it was the penultimate line of natural defence before the valley of the Po, and if the Allies broke it Kesselring's only remaining substantial line was the curve of the Apennines ESE. of Genoa. The Fr. corps now took Siena,

an important point on the W. approach, by the Via Cassia, to the Gothic line. A fortnight later Polish troops took Ancona and the Americans entered Leghorn. The enemy, however, maintained a very stubborn defence along the high ground facing the Eighth Army in front of Florence, the outskirts of which the Eighth reached soon after the capture of Arezzo. By the end of the first week of Aug. Brit. troops held that part of Florence which lies S. of the Arno. At the end of Aug., however, the Germans had been forced back into the Gothic line and Polish troops were in Pesaro on the Adriatic and engaged in bitter fighting against the Ger. 1st Parachute Div. Eighth Army infantry and tanks had now crossed the R. Foglia and were strongly attacking the Gothic line. The campaign entered a new and significant phase in the opening days of Sept. with the Gothic line broken along a 20-m. front in the Adriatic sector, a general advance of the Eighth Army's front, the capture of Pisa, and an advance by the Fifth Army across the Arno.

*The capture of Rimini—the 'Gothic' line overcome.* Rimini, E. pivot of Kesselring's position, fell to the Eighth Army on 22 Sept. after one of the stiffest battles that army had had to fight in the course of its long advance from Egypt. The battle of the Gothic line and of the Apennines ended when the 1st Gk Mt. Brigade and Canadian tanks captured the deserted and ancient city of Ravenna, while the Brit. forces further inland were driving over the last foothills of the Apennines to reach the Marecchith R., which runs from Arezzo to Rimini, and thereby to render the city untenable. In front of the Allies now lay the Lombardy Plain, with the Po valley stretching out beyond. The Eighth Army were now within striking distance of the Via Emilia, historic road along the Po valley to Bologna and Piacenza. In these operations 2 Ger. divs. had lost most of their effective strength, while losses far heavier than those they had suffered at Cassino had been inflicted on the 1st and 4th Parachute and 4 other divs., including the crack 26th Panzer Div.

Ten days' relentless attack against the Gothic line defences in the central sector had left those defences a shattered mass of rubble and battered fortifications. The Gothic line could have been the most formidable artificial defensive system the British had so far encountered. But its defects were that it was overlooked from the S. and lacked depth. Moreover many individual works were badly sited and their construction incomplete or shoddy.

*Ravenna and Faenza captured by Allies—Savio, Senio, and Santeramo Rivers crossed.* After this series of successes there followed a long lull, broken a month later when the Eighth Army advanced between the Via Emilia and the coast, driving the Germans back to the Savio R. Six weeks later Ravenna was entered by the Eighth. Then 12 days later, on 17 Dec., the Eighth Army captured Faenza and carried the

allied line nearer Bologna. But the lull was resumed and 4 months elapsed before the Allies struck again in Italy, though in the meantime they rendered valuable service in holding down 25 well-equipped Ger. divs. at a time when the Allies were carrying out their great attacks on the W. and E. fronts. From the allied viewpoint the main difficulty in Italy lay in the nature of the country. The Fifth and Eighth Armies had advanced northwards over mts. across rivs., and through defiles in terrain peculiarly adapted for defence, and they had never at any time had a

*The final allied offensive launched—Fall of Bologna and Modena—Po crossed.* The allied offensive was soon extended to the Fifth Army under Clark S. of Bologna. His attack, like that of the Eighth Army, was preceded by air blows on a formidable scale by both strategic and tactical air forces. The offensive was led by the 10th Amer. Mt Div., which was fresh and well equipped for its arduous task of overcoming this rugged Apennine sector. The Eighth had now crossed the Sillaro R. which runs parallel with the Santerno, bridgeheads being



*Canadian Army Photo*

A CANADIAN SKI TRAIN IN THE ITALIAN MOUNTAINS

sufficient superiority in numbers and equipment to enable them to achieve a decisive success. For, as the demands of other fronts grew, the It. theatre of war had to take a subordinate place and for about 4 months, owing to wintry conditions, it had been quiescent. The co-ordinated attack on Germany from the S. may be said to have begun on 10 April 1945, with the opening of the allied offensive on the It. front to compass the destruction of the Ger. Army of the Po and drive it away from the industrial area of N. Italy, and eventually to link up with the Allies in Yugoslavia and Austria.

The Senio R. was crossed on a wide front in the vicinity of Lugo, N. of the Rimini-Bologna highway. A day later troops of the Eighth Army, now under McCreery, were across the R. Santerno in strength and at once encountered strong resistance. Other troops landed from Lake Comacchio in the rear of the enemy positions.

won on both sides of the Ravenna-Bologna road. The Germans brought up reinforcements and there was heavy fighting at Bastia, a key position on the Ravenna-Ferrara road. They made desperate efforts to hold the vital Argenta gap, but the Brit. forces pressed on and estab. another bridgehead across the Sillaro. Huge allied bombing raids were made on a score of targets S. of Bologna in support of both the Fifth and Eighth armies. Castel san Pietro, on the Via Emilia, was strongly defended, but Brit. troops entered the tn on 17 April and pushed on NW. towards Bologna, bypassing Argenta. Next day the Argenta gap, providing the sole practicable route for mobile forces W. of Lake Comacchio, was brought under Brit. control with the capture of Argenta on the evening of 18 April and the advance of the Brit. troops towards Boccacchio and Ferrara. From Boccacchio to Lake Comacchio the Germans had their last and toughest defence

line. Following a week of heavy fighting through mountainous country SW. of Bologna Amer. troops entered the Po valley W. of Bologna on 20 April, cutting the Via Emilia between Bologna and Modena. Bologna fell to S. Africans of the Fifth and Poles of the Eighth armies on 21 April. Amer. forces advancing 20 m. beyond in pursuit of disorganised Ger. formations. Bologna was the first great objective of the allied spring offensive. Thus the Allies now stood inside the gateway to the Po plain. With Fifth Army troops closing on Modena, and those of the Eighth closer to Ferrara the full power of the Mediterranean Allied Tactical Air Force was turned on the Germans retreating across the Po valley, with devastating effect, and on 23 April the allied armies reached the Po. A ceaseless attack was maintained throughout the night against enemy columns on the roads and against ferry and pontoon crossings of the Po from Mantua eastward to the Adriatic. Allied troops stormed across the Po less than 24 hrs after they had reached the riv. (24 April). At the same time 3 great cities of N. Italy fell to them: Spezia, Modena, and Ferrara.

*Americans capture Verona and Genoa.* With the Americans well across the Po the Germans became thoroughly disorganised and their resistance sporadic. Verona, heavily damaged, fell on 26 April to the Americans who then crossed the Adige near the city. Genoa was occupied by Amer. Nisei troops on 27 April. It. partisans having previously seized control of a large part of the city and facilitated the entry of the troops. The patriots in fact now controlled much of N. Italy. Amer. armour advancing along the Via Emilia from Parma captured Piacenza midway between Parma and Milan.

*Mussolini executed by Italian partisans—Milan entered.* At Lecco, in the hills above Como, Mussolini was arrested on the same day by customs guards while he was trying to escape into Switzerland. Next day the ex-Duce, his mistress Clara Petrucci, and 12 members of his Fascist Cabinet were executed by It. partisans, who carried their bodies to Milan for public display just before the Fifth Army entered the city (29 April).

*London troops in Venice—Eighth Army across the Adige near Padua.* Troops of the 56th (London) Div. entered Venice on the evening of 29 April. The allied advance now swept rapidly across the N. of Italy. In this swift movement the Fifth and Eighth Armies drove through the enemy's strong defensive Adige line, forcing the Germans back to the E. side of the Brenta. Negotiations were in progress for the surrender of the Ligurian army commanded by Graziani, now a prisoner in allied hands.

*German armies disorganised—Turin entered.* By the end of April the liberation of all Italy was nearing completion. The Ger. armies were so broken and disorganised that they had virtually ceased to exist as a military force. This destruction had all been accomplished in an

offensive lasting only 20 days for the Eighth and 15 days for most of the Fifth Army. Twenty-five Ger. divs., some of which had been the best in the Ger. Army, had been torn to pieces and were no longer able to resist the Allies. Thousands of vehicles, tremendous quantities of arms and equipment, and over 120,000 prisoners had been captured. The military power of Germany and Italy had practically ceased, even though scattered fighting might continue as remnants of the retreating enemy were mopped up.

Turin was entered by Amer. infantry on 30 April, having been captured a short while previously by It. partisans. On the other side of N. Italy Treviso was taken by the 6th S. African Armoured Div. The Americans seized crossings over the Ticino and advanced across the Brenta. Tito's Yugoslav troops broke into Trieste and were fighting in the area of Fiume. Troops of the 2nd New Zealand Div., after crossing the R. Isonzo, reached Monfalcone and made contact with forces of Tito's Yugoslav Army (1 May). The 6th Brit. Armoured Div. entered Udine on the same date. Other Eighth Army troops passed through Vittorio Veneto, scene of a great allied victory in the First World War, and reached Belluno. The Fifth Army continued to advance along the Gulf of Genoa and occupied Savona.

*Italian partisans in control of northern industrial region.* The efforts of It. partisan forces which, in Turin and Milan, did not wait to be liberated but struck timely and powerful blows against the Nazi and Fascist forces, greatly contributed to the enemy's defeat and disorganisation. The liberation of Milan by the combined efforts of the Committee of National Liberation and partisans represented the culminating effort of the resistance movement, which during the previous year had been organised to a high degree of efficiency; and what happened in Milan and Turin happened also in Genoa and in nearly all the big cities of Lombardy and Piedmont. The result was that the greater part of the industrial equipment of N. Italy—factories, foundries, power stations, and hydro-electric plants—were preserved intact in so far as it was undamaged by allied bombing. These events were the prelude to the total collapse of Ger. and Fascist resistance in Italy and their unconditional surrender to Alexander.

*Unconditional surrender of German and Fascist Armies.* Long negotiations preceded the unconditional surrender of the Ger. and Fascist forces in Italy. On 19 Mar. there was a conference near Locarno in Switzerland between 2 representatives of Alexander's staff and Gen. Karl Wolff, senior S.S. officer of the Ger. forces in N. Italy, at which the allied officers told the Ger. general that Alexander was interested only in getting authorised Ger. representatives to Caserta to offer unconditional surrender. Eventually, on 27 April, Wolff and 2 Ger. plenipotentiaries arrived in Switzerland and were brought by allied aircraft to Caserta next

day. On the morning of 29 April the Germans were told that either they must surrender unconditionally or the negotiations, which had been begun the previous day, would end without further delay. The Germans then accepted the allied terms for the surrender of their entire forces under von Vietinghoff-School's command to Alexander, Allied Supreme Commander, Mediterranean. The instrument of surrender was signed in Caserta Palace, near Naples, on 29 April, the terms to be effective from noon, 2 May. The terms of the Ger. 'South-West Command' included all N. Italy to the Isonzo R. in the N.E. and the Austrian provs. of Vorarlberg, Tirol, and Salzburg, and portions of Carinthia and Styria. The enemy's total forces surrendered numbered over 900,000, the combatant troops of which included the remnants of 22 Ger. and 6 It. Fascist divs. The terms involved the unconditional surrender by the Ger. commander of all forces under his command or control on land, sea, or in the air and the immediate immobilisation and disarmament of enemy forces. It was also provided that the instrument would be superseded by any general instrument of surrender imposed by the U.N. and applicable to Germany and the Ger. armed forces as a whole. The surrender of so much territory, which allowed the Allies to advance without opposition to within 10 m. of Berchtesgaden, hopelessly compromised the so-called 'south redoubt' founded on Bavaria, to which the Germans on the W. and E. fronts intended to fall back after their forces had been split in two by the junction of the W. Allies and the Russians on the Elbe (see also WESTERN FRONT IN THE SECOND WORLD WAR). The total number of Ger. prisoners taken by the Allies on the It. front before the end of hostilities was 230,000.

The New Zealand Div. occupied Trieste on 2 May, Gen. Freyberg accepting the surrender of the Ger. garrison. New Zealand forces also occupied Gorizia. The presence of Tito's and other Yugoslav troops in part of Trieste and elsewhere within Italy's E. borders was, however, provocative of awkward territorial and political questions. Troops of the Eighth Army on 7 May crossed the It. frontier into Austria at a point N. of Udine. This movement of the Eighth Army was now linked up along almost its entire course from N. to S. with the line of the Russians' movement to the W. By the creation of this line a boundary was set up which marked the limit of Brit. and Russian operations. This line ran from Liezen, half way between Klagenfurt and Linz, through Judenburg, Köflach, 15 m. W. of Graz, and thence due S. to the Yugoslav frontier. See C. Buckley, *Road to Rome*, 1945; Field Marshal Viscount Montgomery, *El Alamein to the Sangro*, 1946; H.M.S.O., *The Report by the Supreme Allied Commander, Mediterranean, to the Combined Chiefs of Staffs on the Italian Campaign, 1948*; Marshal Pietro Badoglio, *Italy in the Second World War, 1948*;

General Mark Clark, *Calculated Risk*, 1951; *Memoirs of Field Marshal Kesselring*, 1953; F. Majdalany, *Cassino*, 1957.

Italian Greyhound, see GREYHOUND.  
**Italian Language and Literature.** *Language.* Italian is one of the Romance or Neo-Lat. languages, and is a sister tongue of French, Spanish, Portuguese, Rumanian, and Provençal. It is naturally more closely connected than any of these with Latin, the influence of the written speech of Virgil, Cicero, and Horace lingering for long in the peninsula. Its grammar is a simplification of Lat. grammar, but the popular spoken Latin of the rustic played a very important part in the evolution of the It. vocabulary. Italian is divided into very many dialects; indeed It. dialects differ more among themselves and from the standard language than those of any other country. These dialects can be divided into 6 groups: (1) Gallo-Italian; (2) Venetian; (3) Tuscan; (4) Corsican and Sardinian; (5) Central Italian; and (6) Southern. The standard literary and political speech is the Tuscan dialect which became the It. literary language during the 14th cent., when it was employed by Dante and his contemporaries.

*Literature.* No very early documents of It. literature exist, for the tradition of writing in Latin lingered long, and, moreover, Latin did not differ so much from the vulgar speech as to be unintelligible. The influence of the Teutonic invaders upon the speech of the race they subjected does not appear to have been very great. A much more powerful and lasting influence was that of the Fr. and Provençal troubadours who wandered across the Alps as early as the 11th cent. and sang their songs of love and war throughout the peninsula. In the early 13th cent. there grew up round the court of Frederick II (1194-1250) in Sicily an It. school of poets who closely imitated the Provençal lyrics both in style and matter. Chief among them were Frederick himself, and his son Enzo (d. 1272), Piero delle Vigne (d. 1249), and Giacomo da Lentini. But their art was wholly imitative, conventional, artificial, and consequently short lived. In the latter part of the 13th cent. the Tuscan tongue came into prominence. Tuscany had this advantage over the rest that its *lingua volgare*, the familiar speech of the rustic, was more generally polished so as to resemble the poetic diction of other dialects. The Siculo-Provençal poetry was imitated by a small Tuscan school, which, with Guittone d'Arezzo (1215-94) at its head, included the humorists and satirists Folgore of San Gimignano, Cene della Chitarra, and Rustico di Filippo. Guittone abandoned the Provençal chivalric forms, and wrote political and didactic poems. His great pupil, Guido Guinicelli (d. 1276), wrote philosophical lyrics, which are intellectual rather than imaginative, but mark a great development in the hist. of It. poetry. A contemporary of his was Brunetto Latini (d. 1294), the friend and master of Dante. His *Tesoretto* was obviously influenced by allegorical poems,

such as *Le Roman de la Rose*. Under the same influence was Francesco de Barberino (1264-1348). In Umbria the development of poetry was largely due to the religious movement brought about by the establishment of the Franciscan and Dominican orders. To St Francis of Assisi (1182-1226) has been attributed the *Cantico del Sole*, a hymn written in rhythmical prose. The greatest exponents of religious poetry at this time were Jacopo dei Bonedetti da Todi and Raniero Fasani. Fasani's *Laudi* and similar liturgical compositions are the earliest form of It. religious drama. The earliest specimen of It. prose, *Cento Novelle Antiche*, was written in the middle of the 13th cent., probably by a Florentine. It is a collection of short tales drawn from oriental, Gk, Trojan, and medieval sources. Francesco Barberino included similar stories in his *Del Reggimento e dei costumi delle donne*. The letters of Fra Guittone d'Arezzo, on moral and religious subjects, are interesting specimens of the *lingua volgare*. In addition we have a number of trans. and adaptations of Fr. romances and Lat. historical ascetic treatises; an original scientific work on astronomy and geography called *Composizione del mondo*, by Ristoro d'Arezzo; and treatises on gov., *De regimine principum*, by Egidio Colonna, who wrote in the Venetian dialect.

The 14th cent., called *Trecento*, is the age of a mighty trio—Dante, Petrarch, and Boccaccio. Hitherto, poets and writers had experimented in various dialects, and Tuscan had been proved to surpass the others. The great writers of the 14th cent. were all Tuscans, and by their use of it made the Tuscan dialect the acknowledged literary medium of speech in Italy for all time. Dante's immediate predecessors in lyric poetry were Guido Cavalcanti, whose *Sulla natura d'amore* is a poem on the metaphysics of love, Cino da Pistoja, and Lapo Gianni. To this school belonged Dante Alighieri himself (1265-1321). His work culminated in the *Divina Commedia*, a transcendental poem of incomparable beauty (see DANTE). Francesco Petrarca (1304-74) was at the time regarded as the dictator of literature, and his love for Laura has remained as an inspiration to all succeeding poets of every nationality (see PETRARCH). But he must be studied not only as the writer of beautiful love lyrics, but also as the first humanist in Italy, the forerunner of the revival distinguished by an enthusiastic study of ancient classic literature. Giovanni Boccaccio (1313-75) had the same zeal for research into the works of antiquity, as is testified by his encyclopaedic works in Latin. His fame rests mainly on the *Decamerone*, a collection of 100 *novelle* which are arranged and told with the skill of an artist who is at the same time an observant and sympathetic man of the world (see BOCCACCIO).

These 3 great writers had many imitators. Among Dante's followers must be numbered Francesco Stabile, called Cecco d'Ascoli (1269-1327; *L'Acerba*), Fazio

degli Uberti (*Dittamando*), and Federigo Frezzi (*Quadriregio*), whose works are chiefly of historical interest to the student. Novel writing had already attained great popularity in France and other countries. The example set by Boccaccio was now closely followed by Giovanni Fiorentino (*Pecorone*, 1378), Franco Sacchetti (*d.* 1399), a moral writer on immoral subjects, and Giovanni Lercambi of Lucca (1347-1424). The prose literature of the time is chiefly represented by the tales and novels of these and other men, and chronicle is very important as being the first attempt at historical writing. The greatest historian of the time was undoubtedly Giovanni Villani, who wrote a chronicle of his native city, Florence, including a review of the world's hist. from the Tower of Babel down to 1348. Travel literature is represented by the *Travels of Marco Polo*, and the religious and mystic sentiment of the time is expressed in the letters of St Catherine of Siena (1347-80) and in the *Fioretti*, a collection of the words and deeds of St Francis. During the period succeeding the death of Dante, Petrarch, and Boccaccio, there was a dearth of great writers. This may be accounted for partly by the overestimation of ancient Gk and Lat. writers and the consequent underestimation of works in the vulgar tongue. Among those who ventured still to write in Italian rather than in Latin must be numbered Leon Battista Alberti (1407-72), with his *Della Famiglia*, and Matteo Palmieri (1406-75), with his *Della Vita Civile*. Works of a more popular kind were the prose romances *I reali de Francia* and *Guerino il Meschino* of Andrea Barberino (1372-1431), the burlesque topical *sonetti caudati* of the Florentine, Domenico di Giovanni (*d.* 1448), surnamed *Il Burchiello*, and the *rappresentazioni sacre*, or religious dramas, which corresponded in some ways to the miracle and mystery plays of England.

In the middle of the 15th cent. 2 great events occurred which were of vast importance in the literary hist. of every European country. One was the fall of Constantinople in 1453, which drove many Gk scholars into W. Europe; the other was the invention of printing, which did not affect Italy till 1464. In 1447 the erudite founder of the Vatican Library was made Pope Nicholas V, an election which gave great impetus to the study of antiquity. Another event which influenced It. literary hist. was the foundation of the Rom. Academy and the Florentine Platonic Academy, the latter of which made the important declaration that Italian was equal in literary merit to Latin. Moreover, in the great centres of literary activity there were growing up young men of genius who became zealous advocates of maintaining the literary traditions of the country. One of these was Lorenzo de' Medici (1448-92), prince, poet, and patron of literature. His works include *Ambrà*, an Ovidian allegory, *La Caccia col Falcone*, *La Zeucia di Barberino*, the *Canti Carnascialeschi*, carnival songs of a somewhat licentious character, a number of

elegant love poems, besides pastorals and satires. He not merely encouraged, by his personal example, the use of popular literary forms, but he infused into them the culture of the Renaissance. The most distinguished of the men of letters who frequented Lorenzo's court in Florence were Luigi Pulci (1431-87) and Angelo Ambrogini (1454-92), commonly known as Politian. To the former we are indebted for the *Morganite Maggiore*, a humorous epic in *ottava rima*, which contains a curious mixture of flippant and irreverent buffoonery, lofty sentiment, and religious fervour. Politian, who was a brilliant classical scholar and philologist as well as a poet, wrote the lyric tragedy *Orfeo*; *Giostra*, a poem on the tournament; and some exquisite *Stanze per la giostra*. Other protégés of Lorenzo were Antonio Manetti (1423-97) and the famous Girolamo Savonarola (1452-98). The Renaissance of auct culture was similarly fostered by Ferdinand I at Naples. Jacopo Sannazaro (1458-1530) was the first to show that excellent It. prose could be written outside of Tuscany. His *Arcadia*, a pastoral romance, foreshadowed by Boccaccio's *Ameto*, is classical in its construction of sentences as well as in its setting. It set the fashion for writing in studied poetical prose, and prescribed the rule for all future pastoral romances. A fellow townsman of his was Giovanni Pontano (1426-1503), the founder and head of the Neapolitan Academy and the author of many graceful lyrics and lively satires, which are unfortunately written in Latin. In Ferrara, the literary centre of the N., Matteo Maria Bolardo, Count of Scandiano (d. 1494), enjoyed great popularity as the author of an unfinished poem, *Orlando Innamorato*, which celebrates deeds famous in old Fr. cycles. The story is original, though the characters are real people, but the style and diction are lacking in refinement.

The romantic epic, thus for the first time handled with any success by Bolardo, was perfected by Lodovico Ariosto (1474-1533). (See ARIOSTO.) His *Orlando Furioso* is a sequel to the *Orlando Innamorato*. The works of Ariosto open a new period in the hist. of It. literature, a glorious period called by Italians the *Cinquecento*, which is in many respects equal to that of Dante, Petrarch, and Boccaccio. Another epic writer of the second period of the Renaissance was Giovanni Giorgio Trissino (1478-1550), a native of Vicenza. His *Italia liberata da' Goti* (pub. 1547-8) is also of interest as the first attempt to write It. epic poetry in blank verse, but it lacks inspiration and falls far behind his tragedy *Sophonisba* (1515). Both Bernardo Tasso (1493-1569) in his *Amadigi* and Luigi Alamanni in *Orione il Cortese* owed much to *Orlando Furioso*. The high seriousness of these poets is even more prominent in the didactic work of Giovanni Rucellai (1475-1525) and Erasmo da Valvasone (1523-93). Side by side with these didactic poets there developed a school of burlesque writers, the chief of whom were Francesco Berni (1497-1535) and Antonio

Francesco Grazzini, surnamed Il Lasca (1503-84). The cynicism and lack of morality that was characteristic of the time is prominent in the work of that crafty but far-sighted statesman, Niccolò Machiavelli (1469-1527). Second to him as an historian is Francesco Guicciardini (1483-1540), who, besides writing of the hist. and gov. of Florence, made a collection of aphorisms for statesmen called *Ricordi politici e civili*. The 2 chief novelists of the 16th cent. were Matteo Bandello and Anton Francesco Grazzini. Although the former was a Dominican friar, his works reflect the loose manners of



LUDOVICO ARIOSTO

the time as much as any of those of his contemporaries. The licentiousness of the It. courts was embodied in the infamous Pietro Aretino (1492-1557), whose letters, pub. in Paris in 6 vols. (1609), are an index to the life of the times. His comedies are lively and satiric sketches of contemporary manners. Other comedy writers of high merit are Giovan Maria Cecchi, Machiavelli, and Ariosto, but the greater number of It. playwrights adopted the conventional methods employed by auct writers of Lat. comedy. During the latter part of the Renaissance a literary controversy took place with regard to the introduction of dialect forms in literature. In the end the 'purists', who maintained the Tuscan of the 14th cent. to be the literary tongue, prevailed. Chief among them was the erudite Cardinal Bembo (1470-1547), who came to be regarded as the dictator in all matters of literary taste. Other writers of pure and elegant prose were the Mantuan Castiglione (1478-1529) and the Tuscan della Casa (1503-56).

The work of Torquato Tasso (1544-95) brings this period to a close, and forms a link between it and the next. His life work was the *Gerusalemme Liberata*, a poem on a heroic scale, in which is expressed the profundity of his feeling and

the deep melancholy of his soul. (See TASSO.)

The period of decadence which followed the glorious era of the Renaissance may be traced back to the middle of the 16th cent. The writers of the *Seicentismo* were devoid of imagination, of passion, of sentiment. The inspiration of the Revival of Letters left them cold and barren, and their work is distinguished by its exaggeration, bombast, and artificiality. The fashion for this rapid manner of writing was set by Giovan Battista Marini (1569-1625), who, in spite of his far-fetched conceits and extravagant metaphors, showed a vigorous imagination in his poem, *L'Adone*. His manner was mimicked by lesser men, and the style which came into vogue was called after him *Marinismo*. Another characteristic of the *Seicentismo* is seen in Gabriello Chiabrera of Savona (1552-1637) and his followers, Fulvio Testi of Ferrara (1598-1646), Francesco Redi of Arezzo (1626-98), and Alessandro Guidi, who imitated Pindaric and other classical metres, and showed themselves possessed of a real lyric gift. The pastoral drama, essentially an artificial production, became extremely popular, the chief examples of the kind being the *Pastor Fido* of Guarini (1537-1612), and the *Dafne* of Rinuccini, which was set to music by Peri and Caccini. Vincenzo Filicaja (1642-1707) is noteworthy as being one of the few writers of this age with real sentiment. His songs have a true patriotic ring, but even they are expressed in an exaggerated form. A reaction against the extravagance of metaphor and the affectation of an exuberant, passionate style became evident, and took definite form in the estab. by Giovan Maria Crescimbeni and Gian Vincenzo Gravina of the 'Academy of Arcadia' (1690), which advocated a return to pastoral simplicity. The most noted of the 'Arcadians' were Innocenzo Frugoni, Felice Zappi, and Paolo Rolli. But these would-be reformers only escaped one affectation to fall into another; the effeminacy of their madrigals is no better than the hyperbole of Marini. A healthy sign of revolt against *Marinismo* and *Arcadia* is seen in the satires of Salvator Rosa (1615-73), a Neapolitan artist and musician and a forerunner of the 18th-cent. patriots, and in the mock-heroics of Alessandro Tassoni (1565-1638), the author of *La Secchia Rapita* and *Filippiche*. But the most durable work of the *Seicentismo* was done by scientists like Galileo Galilei and Fra Paolo Sarpi, and thinkers like Giordano Bruno and Tommaso Campanella. The prose of Galileo is distinguished by its precision and virility.

The *Risorgimento*, or Age of Revival, was also prepared by Giambattista Vico, who, in his *Scienza nuova*, investigated the universal laws of hist. which had governed the progress of the human race. Lodovico Antonio Muratori, Scipione Maffei of Verona, and Apostolo Zeno applied themselves industriously to historical research, and Count Giovanni Maria Mazzuchelli of

Brescia and Girolamo Tiraboschi showed an interest in the sources and development of literature. Independent criticism found a public platform in the reviews recently estab. on the model of the Eng. *Spectator* and *Tatler*. Chief of these were the *Osservatore* and *Gazzetta veneta* of Gaspare Gozzi (1713-86) and the *Frusta letteraria*, in which Giuseppe Baretti of Turin (1719-1789) gave vent to his satirical humour. Most conspicuous among the literary reformers of the *Risorgimento* was Giuseppe Parini (1729-99), a Lombard poet, who ridiculed the frivolity and self-indulgence of the society of the time in *Del Giorno*. Carlo Goldini (1707-93) may be regarded as the dramatic reformer of the 18th cent. With Molière as his master, he studied the people living about him and supplanted the *commedia dell' arte* by comedies of character.

The educ. classes in Italy were at this time filled with a hope of freedom from the foreign yoke. The idea of liberty they found best expressed in the writings of ant. Gk and Lat. writers on whose style they tried to model their own. Vittorio Alfieri (1749-1803) made a determined effort to establish a national drama. His tragedies, which are almost invariably based on incidents in Gk or Rom. hist., may lack artistic finish, but they are inspired by a noble patriotic spirit. The chief literary fighters for national liberty at this time followed Alfieri in a return to classic models. Ugo Foscolo (1778-1827) passionately advocated the political cause in *Lettere di Jacopo Ortis*, *Sepolcra*, and *Ortis*, which are somewhat marred by his Gargantuan rhetoric. Foscolo should also be noted as a literary critic of high merit. His most important work as such is *Dell' origine e dell' ufficio della letteratura*; he also wrote textual criticisms of Dante and Boccaccio. Other classicists of note are Vincenzo Monti (1754-1828), who attacked the papacy in *Superstizione* and *Fanatismo*, and expressed his fears for his country in *Bassvilliana* and *Feroniade*; Giambattista B. Niccolini (1782-1861), who wrote tragedies on political subjects, as, for example, *Antonio Foscarini* and *Lodovico il Moro*; Ippolito Pindemonte (1753-1828), a dramatic poet; and Leopardi (1798-1837), the greatest lyricist since the *Trecento*. Indignation against Napoleon's aggressive policy roused Carlo Botta (1766-1837) to write a hist. of his country during the years 1789-1814. Other historians like him, distinguished by their patriotism and by their classic methods, are Cesare Balbo (1789-1853) and Gino Capponi (1792-1876).

The modern literature of Italy may be said to have arisen out of the romantic movement which started in Milan towards the end of the 18th cent. The chief characteristics of the new movement were a renewed study in the *aurei trecentisti*, the classic writers of the 14th cent. and in all medieval things, and a keen interest in the works of such men as Goethe and Byron, who represented a similar movement in Germany and England. The organ of the new school was the *Conciliatore*, a



jour. estab. in Milan in 1818, and its leader was Alessandro Manzoni (1785-1873), the author of a great historical novel, *I Promessi Sposi*, which owes much to Sir Walter Scott. Domenico Guerazzi (1804-74) and Massimo d'Azeglio (1798-1865) were successful exponents of the historical novel. Giuseppe Giusti (1809-1850), a Tuscan, won great popularity with his clever epigrammatic satires. Among the political revolutionists, who were at the same time powerful literary advocates of the cause of liberty, should be noted: Vincenzo Gioberti (1801-52), who is also known by his philosophical work, *Primato morale e civile degli Italiani*; Niccolò Tommaseo (1802-74); and Giuseppe Mazzini (1808-72).

Since 1850 politics have had less influence on It. literature. The transition between the Age of Revival, which, roughly speaking, covered the years 1750-1850, and the age of King Humbert is marked by the patriotic poems, *stornelli politici*, of Francesco dall' Ongaro (1808-1873). The traditions of the romantic school were maintained in the poems of Giovanni Prati (1815-84), but the greatest It. poet of the post-Risorgimento, Giosuè Carducci, set on one side the outworn methods of the Romantics, and sought his inspiration in the national literature of an earlier time. The chief followers of his classical manner are Guido Mazzoni and Giovanni Marradi. Other poets of distinction are Giovanni Pascoli, Arturo Graf, Ollindo Guerrini, and Enrico Panzacchi. The drama, on the whole, became more realistic, the chief exponent of modern methods being Gerolamo Rovetta and Giuseppe Giacosa. Antonio Fogazzaro (1842-1910) won a great reputation as a writer of mystic and philosophical novels with an historical setting. The influence of the realistic movement is seen in the novels of Giovanni Verga. Edmondo de Amicis (1846-1908), known by his novels and travels, is one of the most popular of writers. The chief women novelists are Grazia Deledda and Matilde Serao, while Vittoria Aganoor, Annie Vivanti, and Ada Negri are women poets of repute. Gabriele d'Annunzio is a brilliant and versatile writer—a dramatist, poet, novelist, and critic. His genius is undeniable, but many critics complain of the licentiousness and pessimism of his thought. (See D'ANNUNZIO.) Futurism in literature was linked to that in painting, and indeed showed Fr. influence. Its leader was Marinetti, together with Soffici, Papini, and Ungaretti. In criticism and philosophy the outstanding figures were Benedetto Croce and Giovanni Gentile, while Pasquale Villari's books on Machiavelli and Savonarola have become classics. Croce's work has been the direct cause of the revival of aesthetic criticism throughout Europe, and he was also a philosopher and historian. With the dramatist, Bracco, he was one of the few prominent It. authors who were out of sympathy with the Fascist ideals. But there was among younger people an inevitable reaction against Croce's charac-

teristic optimism, a reaction which often took the shape of *esistenzialismo* (Existentialism) and homage to Sartre (q.v.). More specifically post-1918 literature showed a tendency to exploit It. life and the local scene in novel and story—in, for instance, the Sardinian novel of Grazia Deledda, Nobel prize-winner in 1927, or in the sarcastic but humorous work of Ugo Ojetti, or of Panzini, Brocchi, Raffaello Calzini, and Marino Moretti, who is also a poet of distinction. Other important writers are the novelist Zucca, Riccardo Bacchelli, whose long novel, *Il Diavolo al Pontelungo*, is descriptive of the It. anarchist movement, and Prof. Borgese, who besides being a literary critic, has written a novel, *Rube*, reflecting the decadence of life after the First World War. Bacchelli's work is linked in a personal and direct way with the traditions of the 19th cent. He is the most complex and widely cultivated among contemporary It. novelists. His *Il Pianto del Figlio di Lais* ('The Lament of the Son of Lais') is an achievement equal if not superior to the work of Thomas Mann in that kind. Bontempelli is interesting for having inaugurated a movement for abandoning the pure It. classicism for an art more general and worldly. This is offset, however, by the enthusiastic Rom. revival, encouraged by Fascism and finding expression in such a work as Corradini's drama, *Giulio Cesare*, acted in the Gk theatre at Taormina in 1928.

With the exception of Croce, the It. writer of the greatest European importance is Luigi Pirandello, who exploited a psychological world of half-reality. He was a prolific short-story writer as well as playwright (see PIRANDELLO). The Fascist regime, while not seriously deflecting the careers of the older estab. writers such as Pirandello or Panzini, did not produce any notable literature of its own. The best writing was produced in exile, and the It. Socialist, Ignazio Silone, gained European fame with his novel *Fontamara* in 1930. He also wrote a *History of Fascism* in 1934. He returned to Italy in 1945.

Since the Second World War important poetical works have been written by Eugenio Montale, Umberto Saba, Salvatore Quasimodo, and Rocco Scotellaro. Ungaretti, who issued a trans. of Shakespeare's sonnets, is the most notable poet of the previous generation. Alberto Moravia is one of the It. novelists best known outside his own country. *Agostino*, reputed to be his best book, relates to the disturbance and anxiety with which the discovery of sex afflicts the adolescent—a hackneyed theme which, however, Moravia treats with a kind of lucidity. Equally ruthless is Guido Piovene's *Pietà contro Pietà* ('Pity against Pity'), 1946, a novel of contemporary life, crude and subjective,

known in Italy. Among contemporary short-story writers the best known are Vitalino Brancati, whose *Il vecchio cogli stivali* ('The Old Man with the Boots'), 1945, is a description of prov. Sicilian life

under the Fascists, Carlo Cassola, and Guglielmo Petroni. The It. Resistance movement, unlike that in France, did not result in any typical literature, though mention may be made of the novel *Uomini e no* ('Men and Not Men') by Elvio Vittorini, 1945, whose later work, however, has reverted to the manner of Saroyan; and of the autobiographical sketch, *Il Mio granello* ('My Grain of Sand'), 1946, by Luciano Boris. Carlo Levi (1902- ), well known by his novels *Cristo si è fermato ad Eboli*, 1945, *L'Orologio*, 1950, and *Le parole sono pietre*, 1955, is a great admirer of the natural and uncorrupted people of S. Italy. Luigi Bartolini's *Ladri di biciclette*, 1948, a story about the Rom. black market, was typical of the realist trend which gathered a considerable number of followers in the 1950's. Young successful post-war novelists of realism are Vasco Pratolini (1913- ), Giuseppe Berto (1914- ), and Carlo Coccioli (1920-). The revival of the It. theatre since Pirandello's death (1936) is characterised by the recent works of Ugo Betti (1892-1953), Diego Fabbri (1911- ), and Turi Vasile (1922- ).

In another sphere It. writing to-day shows intense vigour: historical research, philosophy, art criticism, and philology are flourishing, and works of this kind are the chief merit of It. culture of to-day.

See separate articles under individual authors' names.

LANGUAGE: See R. Fornaciari, *Grammatica storica della lingua italiana*, 1872; G. I. Ascoli, *Archivio glottologico italiano*, 1873 et sq.; L. Morandi, *Origine della lingua italiana* (5th ed.), 1883, 1892; P. Petrocchi, *Novo dizionario della lingua italiana*, 1884-91; the It.-Eng., Eng.-It. dictionary of A. H. Edgren, 1902; G. Berton, *L'Italia dialettale*, 1916; C. H. Grandgent, *From Latin to Italian*, 1927; R. A. Hall, *Bibliography of Italian Linguistics*, 1941; M. A. Pei, *The Italian Language*, 1941; B. Migliorini, *Saggi sulla lingua del novecento* (2nd ed.), 1942, and *Lingua Contemporanea* (3rd ed.), 1943.

LITERATURE: See F. de Sanctis, *Storia della Letteratura Italiana*, 1870; Adolfo Bartoli wrote a hist. of It. literature (1879-99) down to the 14th cent., and Gaspari one (1884-9) which ended before Tasso (Eng. version to Dante, 1901). See also E. G. Gardiner, *Companion to Italian Studies*, 1934; J. B. Fletcher, *Literature of the Italian Renaissance*, 1934; G. Papini, *Storia della letteratura italiana*, 1937; J. S. Kennard, *A Literary History of the Italian People*, 1941; E. H. Wilkins, *A History of Italian Literature*, 1954; E. M. Fusco, *Scrittori e Idee* (Dictionary of It. Literature), 1956.

Italian Music. (For early developments connected with Rome as seat of the Catholic Church, which are not specifically Italian, see the article MUSIC.) Not Italy but France was the centre of the *ars antiqua* of the 12th-14th cents. (see FRENCH MUSIC), and It. musicians were influenced by the Notre-Dame school. No individual composer's name stands out in a period during which it was painting

and sculpture, not music, that flourished most gloriously in Italy; and even during the 15th cent., when the influence of the *ars nova* had supervened, the only great It. name is that of the Florentine organist and composer Squarcialupi. The *caccia* (= Eng. 'catch'), which was in canon form, and the narrative *ballata* were the chief vocal representatives of *ars nova*, and there were also instrumental dances. Between the death of Squarcialupi in 1480 and the birth of Palestrina about 1525, some half-dozen important composers of the future were born, but before 1. M. reached its 16th-cent. supremacy, it went through a period of powerful Flem. influence. Masters from the Netherlands, Willaert, Cyprien de Rore, Arcadelt, and others, settled at Venice, Florence, or Rome and directly or indirectly taught the next generation of Italians, whose elaborately polyphonic church music took over Flem. devices. But in the hands of masters like Festa, Animuccia, and especially Palestrina, counterpoint was used less mathematically and more artistically. Meanwhile a more independently It. secular vocal music developed in the *frottola* and the *villanella*, both lightly polyphonic song forms with the tune in the top part, the lower parts being performable at will by instruments instead of voices; and the *laudi spirituali*, sacred songs of a rather similar kind that had originated at Florence in the 13th cent. and found their greatest exponent in the 14th-cent. master Francesco Landini, led to the later motet forms as the secular songs led to the madrigal. This combined polyphonic writing with a perfect balance between words and music. Although the madrigal in Italy was at first cultivated by the Flem. settlers, it found great It. masters in Marenzio and Monteverdi, and a daringly modern experimenter in Gesualdo, Prince of Venosa. A later and lighter madrigal form was the *balloetto*, the most characteristic exponent of which is Gastoldi.

The madrigal and ballet found imitators in other countries, especially in Elizabethan England, where they became wholly naturalized; but a curious aftershoot that remained entirely Italian was the so-called madrigal-opera, a dramatic form with music in madrigal style, most perfectly represented by Orazio Vecchi's *L'Amfiparnaso* of 1594, which was anticipated by Striggio and imitated by Banchieri and others. Although performed without action and always sung by sev. voices, even where a single character was supposed to be speaking, this species of madrigal undoubtedly contributed to the origin of opera. So too did the sacred or allegorical music-drama, which the medieval Church had already cultivated with plain-song melodies, and which culminated in Emilio de' Cavalieri's famous *Rappresentazione di anima e di corpo*, performed in 1600, very shortly before the first opera, in the modern sense of the term, appeared, although it also led to another new 17th-cent. form, the oratorio.

The bp. of opera was Florence, where

the music-loving Counts Bardi and Corsi patronised the musicians Vincenzo Galilei, Caccini, Cavalleri, and Peri, and the poet Rinuccini. The latter wrote the libretto of *Euridice*, which was set by both Peri and Caccini, the former's opera being produced in 1600 and the latter's in 1602. The notion of the Florentine *camerata* was not to originate a new form of art, but to revive classical Greek drama, which they imagined to have been sung throughout, and they invented a dry declamatory style due partly to this idea and partly to their limited inspiration and technique. It was not till a much greater master, Monteverdi, took to opera, at Mantua at first and afterwards at Venice, that it was safely launched as a great composite form of art and one of the most important phenomena of music. His *Farola d'Orfeo* was produced at the ducal court of Mantua in 1607, and he wrote many other works for the stage, of which only two and a fragment of a third survive. Monteverdi was the next great Italian master after the death of Palestrina, and his church music and madrigals are as important as his operas. Instrumental music, however, developed in the hands of others, though its centre, too, like Monteverdi's, was Venice, which, as the bp. of music-printing, became the hub of European musical life in the 16th cent.

The earliest surviving lute books, consisting of transcriptions, dances, and fantasies, date from 1507-9. The *canzona* and *ricercare*, originating in transcriptions of Flem. motets, were cultivated by Andrea Gabrieli and Claudio Merulo, and developed by Giovanni Gabrieli, Andrea's nephew, into independent compositions for organ. Another new instrumental form was the *toccata*, originally intended as a piece to try out (touch) the quality of the instrument or the player's skill, and thus evolving a genuine keyboard technique. The allied form of the *ricercare*, which had a polyphonic opening and then developed more freely, the outstanding organ master of which was Frescobaldi, eventually developed into the modern fugue. The Gabriellis were also church composers, attached to St Mark's in Venice, the shape of which, with its 2 organs on opposite sides, favoured the use of voices and instruments in antiphonal groups. The rich instrumental background of Venetian church music was not adopted in Rome, where the brothers Anerio, the brothers Nanini, and others continued to use the *a cappella* style. But an orchestral style was developed by Monteverdi in his operas, where he used a rich assortment of instruments, for which, however, no detailed score was as yet fully written down, mainly because the choice of instruments was not in every particular dictated by the composer, but by what happened to be available.

As the 17th cent. progressed, the habit of abbreviated scoring was further encouraged by the rise of the figured bass, or thorough-bass, which enabled the composer to confine himself to writing down the melodic material and the bass line

only and to indicate the harmonic filling by a system of shorthand. The figures shown under the bass were amplified by the *continuo* player on a keyboard instrument, in simple block harmony or with figuration or even some polyphonic elaboration, according to his skill; but inevitably music thus became more purely harmonic and less contrapuntal. Figured bass, being an instrumental device in itself, though used also with vocal music, such as the chamber duets of Steffani, did much to further the progress of music for combined instruments. But a vocal type almost as important as opera, the oratorio, from which it differed in its sacred subjects rather than in musical style, also owes its evolution to 17th-cent. Italy. The chief difference, apart from the absence of stage action, was the retention of the chorus as an important component, as in the oratorios of the outstanding master of the form, Carissimi. Opera, on the other hand, especially the spectacular baroque Venetian opera of Cavalli, Cesti, and others, dropped the chorus, as did the next great master, Alessandro Scarlatti, whose operas appeared mainly in Rome and Naples. In his works the operatic overture, the *da capo* aria, and the 2 types of recitative (*secco* and *stromentato*) reached a maturity that, except for the overture, foretold an early decay. The figured bass was also destined to decline, rather later, because of the handicap it imposed on the composer's resources.

Instrumental music became more important in the 18th cent. The sonata matured in the 2 forms of *sonata da chiesa* and *sonata da camera*, both usually for 2 violins with a keyboard instrument, the former in 4 movements alternately slow and fast, the latter is *sev.*, mainly in dance forms and thus the forerunner of the suite. A school of violinist-composers arose, with Corelli as its chief figure, Vitali, Geminiani, Veracini, and Tartini, all *b.* before the end of the 17th cent., Giardini, Nardini, Pugnani, and others following. They are all much alike in style and quality, but a great, extremely original, varied, and fertile master is Vivaldi, who, besides operas and church music, wrote a vast number of concertos for all sorts of instruments. The *concerto grosso*, for (usually) 3 solo instruments, string orchestra, and *continuo*, arose at this time. Music for the harpsichord alone was provided by the even more strikingly individual Domenico Scarlatti in the form of over five hundred exercises, now called sonatas and indeed making a direct approach to the full development of that form. G. B. Sammartini a little later laid the foundations for the symphony, to be built on in Germany, and after the middle of the cent. Boccherini wrote chamber music, much as Haydn and Mozart did farther north.

These masters had many important contemporaries who cannot be named here; but some attention must be given to another school that characterises early 18th-cent. Italy, that of *opera buffa*, which flourished especially at Naples in the hands

of Leonardo Leo, Logroscino, Guglielmi, Piccini, and others, and was quite distinct from the type of *opera seria* for which Zeno and Metastasio were now the chief librettists; indeed it took its rise from the comic *intermezzi* performed between the acts of serious operas. It dealt with real human beings instead of gods and heroes, and its music began to make use of concerted singing, duets and set numbers for sev. voices often taking the place of solo arias. The most famous surviving *intermezzo* is *La serva padrona* by Pergolesi, who also wrote serious operas, a *Stabat Mater* and other church music, and instrumental works, but d. too early (aged 26) to achieve real greatness. *Opera seria* was nobly represented by Italians like Jommelli, Traetta, and Maio, as well as by the Spaniard Terradellas and the Austro-Bohemian Gluck, who both before and after his 'reform' operas set librettos of the formal Metastasian type. Comic opera gradually became more highly organised in the hands of Sarti, Paisiello, Gazzaniga, and Cimarosa, whose amiable works pale only before the formidable rivalry of Mozart. Eighteenth-cent. church music was upheld in the old tradition by Martini, but later this weakened in the hands of Jannacconi, Insanguine, and their like. Its decline was to continue during the next cent. until it reached the weak sentimentality of Perosi.

As that cent. approached, It. composers took to settling and working abroad: Rauzzini and Clementi in England, Salleri in Vienna, Cherubini in Paris, Viotti there and in London, Paer at Dreden and Paris, Spontini in Paris and Berlin, and so on. The last two, as well as Cherubini, favoured the new type of Fr. grand opera, and indeed contributed to it; Clementi did much to cultivate the new keyboard instrument—the pianoforte—while Paganini performed unheard-of feats on the violin and wrote for it almost as individually as D. Scarlatti had done for the harpsichord.

We now come to a phase of I. M. during which it is almost entirely dominated by opera, a state that was to last into the 20th cent., though lonely idealists like Sgambati and Martucci did their best to uphold absolute music. Mercadante and Pacini wrote good, solid operas, but it was their slightly older and slightly younger contemporaries, Rossini and Donizetti, who scored enormous successes with both serious and comic works, Bellini making a less sensational appeal with his gentle lyrical talent. All three were spontaneous melodists whose tunes were instantly remembered by a vast public. But they are put in the shade by Verdi's middle-period operas, if not by his earliest works, which were influenced by them, and almost wholly blotted out by the vigour, nobility, and inventive richness of his last operas, especially *Aida*, *Otello*, and *Falstaff*, in the last of which he even reached, in his old age, what he had not conspicuously shown before—great harmonic and orchestral subtlety as well as flawless

refinement. Meanwhile the Ricci brothers and Ponchielli made an approach towards a more realistic and cruder manner, known as *verismo*, intended to appeal to the emotion by frontal assault. It was developed with an easy success by Leoncavallo and brought to the height of popularity and the greatest depth of vulgarity by Mascagni and Giordano. Puccini worked on the same lines, but with genius instead of mere talent, and although he liked sensational plots and musical effects, his work is saved by originality and an unflinching dramatic sense. At the end, in *Turandot*, he showed that he was quite capable of using modern resources with superior mastery.

The only later composer who is predominantly operatic is Pizzetti, but he is by no means exclusively so, and his operas are nobly austere. Respighi wrote operas, but also cultivated orchestral and chamber music. Malipiero and Casella experimented in a great variety of media, and Castelnuovo-Tedesco did the same less enterprisingly, while Ghedini shows neo-classical tendencies. Among the composers b. in the 20th cent. Dallapiccola and Petrassi stand out as the most interesting. See L. Torchi, *L'arte musicale italiana*, 1897; G. Roncaglia, *La rivoluzione musicale italiana*, 1928; see also under composers' names mentioned.

Italo Dialects, see LATIN LANGUAGE.

Italic, see SEVILLA.

Italic, letters of It. origin, said to have been an imitation of the handwriting of Petrarch (q.v.). They were introduced by Aldus Manutius (q.v.) of Venice in 1500 for the purpose of printing his small ed. of the classics. The cutting was entrusted to Francesco Griffo of Bologna. The capitals were square Rom. letters, but the small letters, sloping to the right, were designed to imitate handwriting, even containing a large number of tied letters. Although I. are not joined to each other in modern printing, the ligatures or connecting lines at the beginning and end of each letter are a prominent feature. I. were introduced into England in 1528 by Wynkyn de Worde, and are used to distinguish words, sentences, or sometimes such portions as introductions and prefaces which do not properly belong to the work. They are generally used for unassimilated foreign words occurring in Eng. text, for quotations, for words requiring special emphasis, for titles of books, plays, etc., for names of ships, and for botanical names.

Italo-Ethiopian (Abyssinian) War. This war (1935-6) was essentially a war of aggression perpetrated by the It. dictator Mussolini with complete cynicism and in defiance of the League of Nations and world-wide opprobrium. Not least of the consequences was the encouragement given to other militant powers, i.e. Japan and Germany, who realised that aggression would apparently go unchecked excepting by oral condemnation. In an attempt to bring It. industry to a standstill and otherwise cripple her war effort, sanctions were employed by member

states of the League of Nations. The results were fatuous and served only to hasten the demise of the League. The resources of Ethiopia have yet to be fully appreciated; but the Italians were aware of some of the country's potentialities as a source of mineral and agric. wealth. There was an undisguised intention to conquer and colonise Ethiopia and to gear her economy to that of Italy. Italy had an additional motive; one of national prestige, i.e. to avenge her ignominious defeat by Ethiopia under the Emperor Menelik at Adowa in 1896.

After building up overwhelming military forces in Eritrea in the N., and in It. Somaliland to the S., the Italians launched their invasion on 3 Oct. 1935. The *casus belli* was a spurious claim by Italy to the ownership of wells at Wal Wal. The It. advance from Eritrea overcame great physical obstacles in some of the world's most difficult mountainous terrain; their engineering feats were prodigious. The defeat of 1896 was avenged within a few days when Adowa was entered by Gen. de Bono. He advanced on 2 other fronts at the same time as Gen. Graziani advanced from the S. through the Ogaden to threaten the Harar plateau through which runs the vital railway from Jibuti, in Fr. Somaliland, to Addis Ababa. Graziani met with difficulties and was held up for 4 months, but the Ethiopians failed to take full advantage of this opportunity.

In the N. the invasion had not proceeded at the pace hoped for by Mussolini, and de Bono was replaced by Marshal Badoglio, Chief of the It. general staff. Badoglio and Graziani resorted to more ruthless measures than de Bono. The Italians resorted to widespread use of mustard gas sprayed from aeroplanes, which greatly demoralised the Ethiopians. The French held up shipments of arms, fearful of It. threats to bomb the Fr.-owned railway. Despite defections in the Ethiopian Army, especially among irregulars, the Ethiopians resisted stoutly and at great cost in lives; but such actions were spasmodic and their successes few. The Ethiopians, although masters at guerrilla tactics, did not exploit their natural advantages as they might have done, particularly when much of the It. heavy transport was bogged down during the rains.

The Ethiopians, as an organised force, were no match for the Italians, despite the heroic personal example shown by the emperor, Haile Selassie, who literally courted death at the head of his Imperial Guard. All the odds were against the Ethiopians: their army was untrained in modern warfare and their equipment was inadequate and insufficient to combat even a moderately well-armed enemy. Long after defeat appeared inevitable, the emperor made his way to Jibuti with a few faithful friends and joined his family. From Jibuti they sailed for Palestine in a Brit. warship, and later came to England where they were given sanctuary. Five years later, in a brilliant military campaign, in which Ethiopian

troops played an honourable part, Ethiopia was liberated by Brit., Indian, and S. African troops (1940-1).

As a matter of policy the Italians used Eritrean conscripts and Somaliland Libyan mercenaries. Any hand-to-hand fighting was as far as possible spared the It. troops, and as a consequence, the It. casualties killed were under 1400; a further 1000 *d.* of disease and 453 It. workmen must be added to this deathroll. It. troops of the African race killed in action numbered 1593. There are no accurate records of the number of Ethiopian troops and civilians killed, but it was many thousands, and massacres of civilians in the cities were on a large scale. Throughout the disgraceful episode, only one public gesture reflected the degree of shame felt by civilised world opinion. This was the resignation of the Brit. foreign secretary, Mr (now Sir) Anthony Eden, following the pub. of the Laval-Hoare pact, which called upon Ethiopia to abandon her sovereignty in favour of Italy. Eden's act of honourable indignation, the hospitality shown to the exiled emperor, and the final part played by Brit. and commonwealth forces in the defeat of the Italians in Ethiopia, did much to assuage Ethiopia's anger against W. nations, including the U.S.A., who connived by their failure to support a fellow member of the League of Nations against just the sort of attack envisaged but outlawed by the League. See further under ITALIAN EAST AFRICA, CAMPAIGN IN (1940-1) and WORLD WAR, SECOND.

See G. A. Rossi, *I Diritti D'Italia Oltremare*, 1916; *Affairs*, 1935, *Italy, Documents relating to the Dispute between Ethiopia and Italy*, 1935, Cmd. 5044; A. J. Toynbee and V. M. Boulter, *Abyssinia and Italy* (vol. II of *Survey of International Affairs*, 1935), 1936; E. W. Polson-Newman, *The War in Abyssinia*, 1936; M. H. Macartney and P. Cremona, *Italy's Foreign and Colonial Policy, 1914-1937*, 1938; Christine Sandford, *Ethiopia under Haile Selassie*, 1946.

Italy (It. *Italia*, rep. (*Repubblica Italiana*) of S. Europe, comprising the long, narrow, boot-shaped peninsula which extends southwards from the Alps (q.v.) into the Mediterranean Sea, together with the is. of Sicily, Sardinia, and Elba (qq.v.), and some smaller is. The Alps form a semicircular barrier separating I. from France on the NW. and Switzerland and Austria on the N. In the NE. the Julian Alps, at the N. of Istria (q.v.), provide a less clearly defined boundary with Yugoslavia, and it is here that the hitherto troubled ter. of Trieste (q.v.) is situated. On the W. I. is bounded by the Ligurian and Tyrrhenian Seas (qq.v.), on the E. by the Adriatic Sea (q.v.), and on the SE. by the Ionian Sea (q.v.). At the Strait of Otranto (q.v.) the 'heel' of I. approaches to within 60 m. of the coast of Albania. The greatest length of the peninsula, measuring in a straight line from NW. to SE., is 710 m., and its breadth ranges from 354 m. to 20 m., the average breadth being

about 90 m. Area 116,304 sq. m. The cap. is Rome (q.v.).

**Geography.** N. I. is cut off from the rest of the peninsula by the Apennines (q.v.), which branch off from the Maritime Alps E. of Nice, and run in a S.E. direction from the Gulf of Genoa to the Adriatic coast. The range then turns more to the S. near Urbino and extends as far as Cape Spartivento, at the extremity of the 'toe' of I., thus forming the backbone of Central and S. I. It is convenient to consider the physical features of the country under these 3 divs.: N., Central,

of the Po), including the Adige, Adda, Brenta, Tagliamento, Ticino, and Piave (qq.v.). Along the coast of the Adriatic, N. and S. of the Po delta, there are many large lagoons, in a flat and marshy dist. They are separated from the sea by narrow banks of sand in which are inlets, so that the lagoons serve as harbours; the chief of these is that on which Venice (q.v.) is situated. The S.W. coastline of N. I. is formed by a narrow strip of land, closed in by the steep, abrupt rocks of the Apennines; it is known as the 'Riviera' (q.v.).



*By courtesy of the Italian State Tourist Office*

#### GATHERING ITALIAN TOMATOES

and S. N. I. embraces the regions of Piedmont, Valle d'Aosta, Liguria, Lombardy, Veneto, Trentino-Alto Adige, Friuli-Venezia Giulia, and Emilia-Romagna (qq.v.). Lying between the Alps and the upper Apennines is the wide plain which forms the basin of the Po (q.v.). This is shut in all round from Menton to the Gulf of Trieste by the towering Alpine wall; the different ranges, from W. to E., being the Maritime, Cottian, Graian, Pennine, Helvetian, Rhaetian, and Carnic Alps. The highest Alpine peak entirely within I. is the Gran Paradiso (13,323 ft), a peak of the Graian Alps. To the S. of the Alps, in the N. of Lombardy and Veneto, lie the beautiful lakes Garda, Maggiore, Como, Lugano, and Iseo (qq.v.). The great fertile plain of the Po valley is watered also by sev. other important rivs. (sev. of them tribs.

The geography of Central and S. I. is mainly determined by the Apennines; in Central I. these are broken up into many short ranges, particularly in Tuscany. The culminating peak of the whole range is Monte Corno (9580 ft) in the Gran Sasso d'Italia (q.v.). Central I., according to the general div., comprises the regions of Tuscany, Le Marche, Umbria, Lazio, and Abruzzi e Molise (qq.v.). The most important riv. is the Tiber (q.v.), the riv. on which Rome stands, and another riv. of importance is the Arno (q.v.). The chief lake of the area is Trasimeno (q.v.), while other lakes (including Bolsena and Bracciano, qq.v.) occupy the craters of extinct volcanoes. The volcanic tract extends from Monte Amiata (5690 ft) in Tuscany to Vesuvius (q.v.) in Campania. On the W. the Apennines slope down to the Pontine Marshes and the Campagna

di Roma (q.v.), and on the E. to the broad plains of Apulia. The regions of S. I. are Campania, Basilicata, Apulia, and Calabria (q.v.). Sicily and Sardinia are also counted as regions of S. I. The main ridge of the Apennines is continued due S. by the Monte della Maddalena, culminating in the Monte Pollino (7375 ft). The low hills N. of the Gulf of Taranto (q.v.), between the 'heel' and the 'toe' of I., are of Pliocene formation, while the Calabrian Hills are a broken limestone range where the height rises to 6000 ft in the wooded, granite Sila Mts, the highest peak being Aspromonte (q.v.). The rivers of S. I. are not of great importance.

The Adriatic coastline is practically unbroken except for the promontory of Gargano (q.v.). The chief harbours on the Adriatic side are Venice, Ancona, Brindisi, Barletta, and Bari (q.v.); the large harbours belong to the cities of the W. shore—Genoa, La Spezia, Leghorn, Civitavecchia, and Naples (q.v.); and in the S. is the fine harbour of Taranto (q.v.).

**Climate.** The climate of I. is in general hot, but the peninsula is to a great extent preserved from extremes of heat and cold by the long coastline; it is also screened from the cold N. winds by the Alps. Nevertheless, there are wide variations in climate according to the proximity of sea or mts. In the Alps the winter is hard. In the Po valley the winter is also severe, with frequent fogs. The Riviera enjoys a sunny, mild climate all the year round, as do Naples and Sicily. The Adriatic coast is exposed to biting NE. winds, but the greater portion of the W. half of the peninsula enjoys a mild winter and a hot summer. Rainfall is not very great (except in autumn), and varies between 35.5 in. in the N. and 24 in. in Sicily. In recent times the gov. has made strenuous efforts to reduce the incidence of malaria, a disease which afflicted many parts of the country, particularly in the W.

**Flora.** The vegetation of the country is as varied as the climate. In the Alps and Apennines the chief trees are the fir, larch, oak, and chestnut. On the Riviera coast, in Sicily, and on the shores of the great lakes the flora is subtropical. Palms, olives, and oleanders are found in profusion, as well as orange-groves and vineyards.

**Agriculture, etc.** Agriculture is the basis of the I. economy. Nearly 92 per cent of the land of the country is exploited for agric. or forestry purposes, and 50 per cent of the working pop. are engaged in agric. or forestry pursuits. In 1956 the agric. acreage was utilised as follows: cereals, 17,520,000 ac.; leguminous plants, 2,950,000 ac.; industrial plants, 1,062,000 ac.; garden produce, 1,915,000 ac.; vines, 2,655,000 ac.; olives, 2,205,000 ac.; forests, 14,402,000 ac.; forage and pasture, 24,080,000 ac.

The land reform of 31 Mar. 1953 provided for the expropriation and re-allotment of some 1,800,000 ac. of land. By the end of 1955 over 730,000 ac. of land thus sequestered had been allocated to peasants.

Vineyards are scattered throughout the country. In the Alpine dists. forests, orchards, and pasture lands are of primary importance; in the Po valley cereals and fodder; and on the hills of the centre and S. cereals, olives, and vines. Drainage and irrigation works are widely developed. In 1955, 147,397 farm tractors were in use. The chief items of export are vegetables, rice, fruits, oil, and wine. Large quantities of wheat, and other agric. produce, are imported.

The production figures for the chief crops in 1955 were (in metric quintals): wheat, 95,040,000; barley, 2,917,000; oats, 5,234,000; rye, 1,232,000; maize, 32,040,000; beet, 92,074,000; potatoes, 33,817,000; tomatoes, 16,489,000; rice, 8,589,000; olive oil, 1,809,000; hemp, 341,000. In 1955, also, the fruit crop was (in metric tons): oranges, 623,460; tangerines, 103,900; lemons, 313,290; other citrus fruits, 29,210.

58,411,000 hectolitres of wine were produced in 1955, and 723,163 quintals of tobacco.

The numbers of live-stock in the country in 1955 were: cattle, 8,669,600; pigs, 3,760,200; sheep and goats, 10,771,800; horses, 617,100; mules, 378,600.

**Resources and industry.** The early geological formation of the country has left I. with very few natural resources. Only sulphur and mercury are found in quantities sufficient to allow of export in any bulk. The chief mining areas are in Sicily (Caltanissetta), Sardinia (Cagliari, Sassari, and Iglesias), Tuscany (Arezzo, Grosseto, and Florence), Piedmont, and Lombardy.

Production figures for 1955 were (in metric tons): coal, etc., 1,608,326; petroleum, 204,317; iron pyrites, 1,317,008; iron ore, 1,393,691; sulphur, 1,762,592; zinc, 246,619; bauxite, 327,171; lead, 78,115; manganese, 56,866; cast iron, 1,624,192; raw steel, 5,394,639; rolled iron, 3,990,681.

Hydro-electric power is greatly developed. In 1955, 38,124,000,000 kWh of electricity were generated, of which over 30,000,000,000 kWh were from hydro-electric plants.

Industrial undertakings are largely concentrated in the N., but a planned increase is taking place in the industrial productivity of the S. The textile industry is the largest and most important. The output figures for 1955 were (in metric tons): raw silk, 1,555; artificial silk, 143,090; cotton yarns, 146,330; cotton fabrics, 98,273; jute yarns, 51,057; woollen yarns, 41,063.

In 1955 the chemical industry produced (in metric tons): sulphuric acid, 3,056,790; superphosphate, 1,975,740; copper sulphate, 99,832.

Sugar output in 1955 was 1,077,484 metric tons. In the same year 243,020 motor-cars were manuf., of which 68,662 were exported.

Other manufs. of importance are rolling-stock, wireless sets, typewriters, agric. machinery, motor-bicycles and bicycles, and foodstuffs.

**Foreign trade.** The value of foreign trade in 1956 was (in lire): imports, 1,980,695 million; exports, 1,348,016 million. The most important imports, by value, were (1954): coffee, cotton, wool, coal, crude oil, machinery, and chemicals. The most important exports were: fruit, cotton yarn and fabrics, woollen yarn and fabrics, artificial textiles, machinery, motor vehicles, and chemicals.

The countries to which I. chiefly exports (in order of value) are: Germany, U.S.A., Switzerland, France, U.K., Argentina, Yugoslavia, Turkey, and Poland. The chief countries from which imports are received are: U.S.A., Germany, U.K., France, Switzerland, Argentina, Yugoslavia, and Turkey.

Trade between I. and the U.K. in 1956 amounted to (in £ sterling): imports to U.K., 57,636,820; exports from U.K., 59,542,090; re-exports from U.K., 4,579,616.

**Communications.** The construction of railways dates from 1839, when a line was opened from Naples to Portici (8 m.). Now there are 2 main lines running the entire length of I. along both sides of the Apennines, and connected with the lines of the N. plain and with numerous minor lines. The total length of railway track in 1956 was 13,624 m., of which about 75 per cent were state-owned, and of which 3,845 m. were electrified. In 1955 the state railways carried 385,771,000 passengers and 59,398,000 metric tons of goods. In 1956 there were 108,900 m. of roads, of which 15,425 m. were state roads and 26,800 m. prov. roads. At the end of 1955 there were 879,313 motor-cars, 356,287 commercial vehicles, 2,648,077 motor-cycles, and 10,365 motor-buses in the country.

The It. mercantile marine in 1956 consisted of 4,079 vessels of 4,442,416 gross

tons; 3968 of these vessels (4,440,375 gross tons) were steam or motor driven, and 111 were sailing vessels.

The It. airlines, Alitalia and L.A.I., operate services to the countries of Europe and Africa, Israel, Persia, and N. and S. America. In 1955, 241,883 passengers were carried, as well as 6932 metric tons of freight.

**Population.** At the first general census (1871) taken after the unification of I., the pop. was 27,577,640 (present boundaries, excluding Trieste). In 1911 the pop. was 35,694,582, and in 1936, 42,302,680. The 1955 pop. was 48,675,000.

The pops. of the regions in 1955 were: Piedmont, 3,602,000; Valle d'Aosta, 97,000; Liguria, 1,602,000; Lombardy, 6,722,000; Veneto, 3,911,000; Trentino-Alto Adige, 750,000; Friuli-Venezia Giulia, 429,000; Emilia-Romagna, 3,587,000; Tuscany, 3,209,000; Le Marche, 1,370,000; Umbria, 814,000; Lazio, 3,502,000; Abruzzi e Molise, 1,699,000; Campania, 4,509,000; Basilicata, 647,000; Apulia, 3,340,000; Calabria, 2,104,000; Sicily, 4,624,000; Sardinia, 1,343,000.

The pops. of the chief tns in 1955 were: Rome, 1,751,000; Milan, 1,303,000; Naples, 1,059,000; Turin, 783,000; Genoa, 680,000; Palermo, 528,000; Florence, 393,000; Bologna, 364,000; Venice, 328,000; Catania, 321,000; Bari, 288,000; Trieste, 271,000; Messina, 232,000; Verona, 187,000; Taranto, 180,000; Padua, 177,000; Cagliari, 149,000; Leghorn, 148,000; Brescia, 147,000; Reggio di Calabria, 144,000; Ferrara, 140,000; Parma, 122,000; Modena, 116,000; La Spezia, 109,000; Reggio nell'Emilia, 109,000; Bergamo, 108,000. The number of emigrants from I. to oversea countries in 1955 was 145,614.

The ter. of I. is subdivided into regions and provs. as under (see separate articles):

<b>Piedmont</b>	Venezia	Pistola	<b>Basilicata</b>
Alessandria	Verona	Siena	Potenza
Asti	Vicenza	<b>Le Marche</b>	Matera
Cuneo	<b>Trentino-Alto Adige</b>	Pesaro-Urbino	<b>Apulia</b>
Novara	Trento	Ancona	Bari
Turin	Bolzano	Macerata	Foggia
Vercelli	<b>Friuli-Venezia Giulia</b>	Ascoli Piceno	Lecce
<b>Valle d'Aosta</b>		<b>Umbria</b>	Brindisi
<b>Liguria</b>	Gorizia	Perugia	Ionio (Taranto)
Genoa	Udine	Terni	
Imperia	Trieste	<b>Lazio</b>	<b>Calabria</b>
La Spezia	<b>Emilia-Romagna</b>	Viterbo	Catanzaro
Savona	Bologna	Rieti	Cosenza
<b>Lombardy</b>	Ferrara	Roma	Reggio/Calabria
Bergamo	Forlì	Frosinone	
Brescia	Modena	Latina	<b>Sicily</b>
Como	Parma	<b>Abruzzi e Molise</b>	Agrigento
Cremona	Piacenza	L'Aquila	Caltanissetta
Mantua	Ravenna	Chieti	Catania
Milan	Reggio/Emilia	Pescara	Enna
Pavia	<b>Tuscany</b>	Téramo	Messina
Sondrio	Massa e Carrara	Campobasso	Palermo
Varese	Arezzo	<b>Campania</b>	Ragusa
<b>Veneto</b>	Florence	Avellino	Syracuse
Belluno	Grosseto	Naples	Trapani
Padua	Leghorn	Benevento	
Rovigo	Lucca	Naples	
Treviso	Pisa	Salerno	
		Caserta	
			<b>Sardinia</b>
			Cagliari
			Nùoro
			Sàssari



**Religion.** By the Lateran Treaty (q.v.) of 1929 the dispute between the Papacy and the It. Gov., which began in 1870 at the time of the unification of I., was terminated. In the summer of 1931 there was another rupture between Church and State over the nature of the *Azione Cattolica*, but an agreement was arrived at on 2 Sept. During the debates on the constitution in the post-Second World War Constituent Assembly the question of the relations between Church and State arose again. Article 5 of the draft Constitution, formally reaffirming the provisions of the Lateran Treaty, occasioned a long debate, but was finally accepted by 350 votes to 149.

The Catholic Apostolic Rom. religion is recognised as the official religion of the State, and is professed by 99 per cent of the pop. Other creeds are permitted, provided that they do not profess principles, or follow rites, contrary to public order and moral behaviour. The profession of such creeds is free, and discussion of religious matters is freely permitted. Catholic religious instruction is given in elementary and intermediate schools. Marriages may be solemnised before a Catholic clergyman in accordance with the rules of canon law, or before a clergyman of any other religion admitted by the State. Article 23 of the new constitution permits civil divorce.

The Pope is the Primate of I. There are 53 archbishops, and there is a Patriarch in Venice.

Four Protestant Churches are united in a Federal Council of Evangelical Churches in I.; they have a total membership of about 50,000. There are some 35,000 Jews.

**Education.** Under the Fascist regime the educational theories of Giovanni Gentile (q.v.) were put into practice, educational programmes were laid down, but teachers were free to arrive at the results therein determined by their own methods. There was, however, no departure from Fascist principles, which were further inculcated through the youth organisations, the *Balilla* for boys from the ages of 5 to 15, and the *Aran-guardisti* from 15 to 18. The subservience of education to the regime was completed by the so-called School Charter (*Carta della Scuola*) of 1939; education of women was discouraged, and co-education was forbidden. With the overthrow of Mussolini education was permitted to return to its liberal principles.

All children between the ages of 6 and 14 are obliged to attend school. Primary education is given in 3 stages: free kindergarten, from the ages of 3 to 5; lower for 3 years; and higher for 2 years.

Secondary education is given in the secondary or middle schools, by the classical schools, the science schools, and the institute for teachers. There are also secondary technical institutes, and agric., industrial, commercial, and nautical schools. In the year 1953-4 there were 14,344 kindergarten schools, 35,462 public elementary schools, 2379 private

elementary schools, and 566 private recognised schools. There were 4129 secondary schools of various types.

Univs. are situated at (date of foundation given in brackets): Bari (1924), Bologna (1200), Cagliari (1626), Camerino (1727), Catania (1434), Ferrara (1391), Florence (1321), Genoa (1243), Macerata (1290), Messina (1549), Milan (1924), Modena (1678), Naples (1224), Padua (1222), Palermo (1805), Parma (1502), Pavia (1390), Perugia (1276), Pisa (1338), Rome (1303), Salerno (1944), Sassari (1677), Siena (1300), Turin (1404), Trieste (1924), Urbino (1564), and Venice (1868).

**Justice.** There is a court of cassation in Rome. The country is divided into 23 appeal court dists. (with one detached section), subdivided into 154 tribunal dists., which are in turn divided into *mandamenti*, each with a magistracy (*pretura*). There are also 91 assize courts of first degree, and 24 assize courts of appeal. In addition, there are *con-ciliatori* with jurisdiction in petty civil cases. In 1955 there were 901 pre-trial jails, 84 penal jails, and 22 preventive institutions.

**Finance.** Revenue and expenditure for the fiscal years ending 30 June are given as (in lire):

	Revenue millions	Expenditure millions
1955-6	2,509,900	2,809,900
1956-7	2,650,191	2,921,452
1957-8	2,849,000	3,053,000

The public debt at 30 June 1956 was 4,257,390 million lire.

The standard coin is the *lira* of 100 *centesimi*. The exchange rate of the £ sterling was fixed in 1946 on the dollar basis (£1 = \$2.80). The official rate of exchange from 2 Aug. 1947 is 1 million lire = \$2850.

According to the law of 6 May 1926 there is only one bank of issue for currency the Banca d'Italia. The State has, however, issued 100-, 50-, 10-, 5-, 2-lire, and 1-lira notes not included in the note circulation figures. Since 1936 all credit institutions have been under the control of an 'Inspectorate of Credit,' and the Bank of I. has been converted into a public institution, the capital of which is held exclusively by public corporations.

By a decree of 29 April 1923 life-assurance business is carried on only by the National Insurance Institute, and by such other institutions as are authorised by the gov.

**Defence.** Under the Fascist regime military service was compulsory and universal for men between the ages of 21 and 55. The army was divided between the Metropolitan army with a normal peace-time estab. of 260,000, and the Colonial troops. At the beginning of the Second World War 1,500,000 men were mobilised, including 132 battalions of the Black Shirt Militia, normally part of the Voluntary Militia for the National Security (M.V.S.N.). The *Carabinieri*,

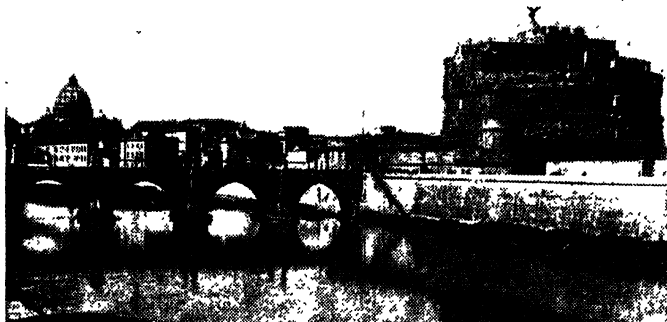
or military police, numbered over 50,000 in 1939. The navy, with a personnel of 4000 officers and 75,000 men, consisted in 1939 of 6 battleships, 20 cruisers, 52 destroyers, 65 torpedo boats, and 90 submarines. The air force, including army co-operation units and the naval air arm, mustered 2000 first-line aircraft in 1939, with 400 reserves.

Most of the restrictions imposed upon I. in Part IV of the peace treaty of 1947 were repudiated by the signatories on 21 Dec. 1951, only the U.S.S.R. objecting.

The new army is composed of 10 infantry divs., 3 armoured divs., and 5 Alpini brigades.

1959. In 1950 the U.N. decided that Eritrea was to be given its freedom in a federation with Ethiopia, to become effective in 1952. Libya (comprising Tripolitania, Cyrenaica, and Fezzan) obtained its independence at the end of 1951 (q.q.v.).

**Political parties.** The prin. political parties are: (1) *Partito Democrazia Cristiana* (D.C.), a Christian Democratic party of the Centre, which is the successor to the pre-Fascist Popular party. It is militantly anti-Communist. (2) *Partito Comunista Italiano* (P.C.I.), founded 1921, is the largest Communist party in W. Europe. It opposes the Atlantic Alliance



Canadian Pacific

THE DOME OF ST PETER'S AND (RIGHT) CASTEL SANT ANGELO (TOMB OF HADRIAN)

The coastline of the country is divided into naval zones, with H.Q. at La Spezia, Naples, Taranto, and Venice. There are also naval bases at Brindisi, Genoa, Leghorn, Ancona, and Augusta. In 1957 the navy consisted of 41,000 officers and ratings and the following ships: 3 cruisers, 2 large destroyers, 2 destroyers, 3 anti-submarine frigates, 14 frigates, 5 submarines, 26 corvettes, 4 fast mine-sweepers, 16 mine-sweeping trawlers, 3 mine-sweepers, 50 coastal mine-sweepers, 20 inshore mine-sweepers, 30 motor torpedo boats, 2 motor gunboats, 22 anti-submarine patrol boats, 6 landing-support gunboats, and various other craft.

In 1957 the It. Air Force comprised 5 fighter brigades, 1 reconnaissance brigade, 1 transport brigade, 2 anti-submarine groups, and supporting forces.

**Overseas possessions.** In the peace treaty of 1947 I. renounced claim to her former overseas possessions. The concession of Tientsin (q.v.) was restored to China, and the islet of Saseno to Albania. It. Somaliland became (1950) an It. trusteeship under the U.N., to expire in

and favours co-operation with the countries of E. Europe. (3) *Partito Socialista Italiano* (P.S.I.), co-operates with the Communist party since 1946. It was expelled from the Socialist International in May 1949 for advocating a policy of maximum collaboration with the Communists. It believes that I. should remain independent of any power bloc, and appeals mainly to manual and white-collar workers. (4) *Partito Socialista Democratico Italiano* (P.S.D.I.), is a Socialist party (formed in 1951 by the merger of 2 previous parties, the P.S.L.I. and the P.S.U.) belonging to the Socialist International. (5) *Partito Repubblicano Italiano* (P.R.I.), follows the political principles of the Mazzinian school (see GIUSEPPE MAZZINI). (6) *Partito Liberale Italiano* (P.L.I.), the It. Liberal party. There are also 2 monarchist parties (*Partito Nazionale Monarchico* and *Partito Popolare Monarchico*) and a right-wing party called *Movimento Sociale Italiano*.

**Constitution and government.** I. became a rep. on 10 June 1946, on the announcement of the Court of Cassation that a

majority of the voters in the referendum held on 2 June had voted for a rep. 54.3 per cent of the votes cast were for a rep., and 45.7 per cent for the retention of the monarchy. 89.1 per cent of the electorate voted. On 18 June the Provisional gov. issued an 'Order of the Day' proclaiming that all court verdicts in future should be handed down 'in the name of the Italian people,' and that all references to the monarchy should be deleted from legal and governmental statements.

The new constitution was passed by the Constituent Assembly on 22 Dec. 1947, by 453 votes to 62, and it came into force on 1 Jan. 1948. I. is described as 'a democratic republic founded on work,' and emphasises the constitutional sovereignty of the people. The rep. recognises and guarantees the rights of man, either as an individual or in community, and it expects devotion to duty and the fulfilment of political, economic, and social obligations. All citizens enjoy equal status and are regarded as equal before the law, without distinction of sex, race, language, or religion, and without regard to their political opinions or their personal or social standing. Any citizen of a foreign country who is deprived of democratic liberty such as is guaranteed under the constitution has the right of asylum within the ter. of the rep. I. repudiates war as an instrument of offence against the liberty of other nations and as a means of resolving international disputes. Freedom of religious practice, of thought, speech, and writing is guaranteed. The press is entirely free of control or censorship, and no person may be deprived of civic or legal rights on political grounds. The death penalty is not allowed, except under martial law. An accused is deemed 'not guilty' unless otherwise proven, and punishment shall be humanitarian and directed towards the re-education of criminals.

Parliament consists of a Chamber of Deputies and a Senate. The Chamber is elected for 5 years by universal and direct suffrage, on the basis of 1 deputy for each 80,000 inhab. Deputies must be at least 25 years of age. The Senate is elected on a regional basis, each region having at least 6 senators, 1 for each 200,000 inhab. (the Valle d'Aosta has 1 senator only). The President of the Rep., who is himself a senator for life, can nominate 5 senators for life from eminent men in the spheres of social, scientific, artistic, and literary life. The President is elected by a joint session of the Chamber and the Senate, to which are added 3 delegates from each regional council (1 from the Valle d'Aosta). A two-thirds majority is required for the election, but after a third indecisive scrutiny an absolute majority is sufficient. The President must be at least 50 years of age, and his term of office lasts for 7 years. His deputy is the president of the Senate. The President can dissolve the Houses of Parliament, except during the last 6 months of his term of office.

The Cabinet can be forced to resign only

on a motivated motion of censure. The defeat of a gov. bill does not necessarily involve the resignation of the gov. A constitutional court, consisting of 15 judges appointed (5 each) by the President, Parliament (in joint session), and the highest law and administrative courts, can decide on the constitutionality of laws and decrees. It also defines the powers of the State and the regions, and judges conflicts between the State and the regions, or between the regions themselves. The President and the ministers may be tried by it.

The reorganisation of the Fascist party is forbidden. Direct male descendants of King Victor Emmanuel are excluded from all public offices, are banned from It. ter., and have no right to vote or to be elected. Their estates are forfeit to the State. Titles of nobility are no longer recognised, but those existing before 28 Oct. 1922 may be incorporated as part of the personal name.

*National flag and anthem, etc.* The national flag consists of vertical bands of green, white, and red. The national anthem is *Fratelli d'Italia* (words by G. Mameli; tune by M. Novaro, 1847). The metric system of weights and measures is in general use.

*History.* The name I. was used by the Greeks first to the extreme S. or 'toe' of the peninsula. They afterwards extended it to the country S. of a line drawn from Posidonia (Paestum) on the W. to Tarentum on the E. Following the Rom. conquest of Tarentum and the S. part of the peninsula (c. 272 BC) the name I. signified the whole ter. northward from the straits of Messina to the R.s Arno and Rubicon. The country beyond these rivs. continued to be called Gallia Cisalpina and Liguria until the reign of Augustus. The early hist. of I. is inseparable from that of Rome (see ROMAN HISTORY). The present section of this article is intended only as a broad survey; for further particulars see also EUROPE, *History*; HOLY ROMAN EMPIRE; RENAISSANCE, etc.; and articles on individuals and events mentioned here.

Rom. rule endured until AD 476, when Odoacer, leader of the Herulian mercenaries, deposed the young Romulus, last Augustus of the W. empire, and placed the kingdom under the rule of Zeno, the Byzantine emperor. Odoacer (q.v.), who had been pronounced 'patrician' by the emperor and 'king' by his soldiers, ruled in I. until he himself was conquered and deposed in 493 by Theodoric, King of the Ostrogoths (q.v.). At his death (526), Belisarius and Narses, sent by Justinian, invaded and reconquered the country. In 568 the Lombards, who had been employed by Narses as mercenaries, swept down upon I. from the N. under the leadership of their King Alboin. Pavia was captured after a 3 years' siege, and made the cap. of the new kingdom. The Lombards spread S., and formed the 2 duchies of Spoleto and Benevento, but lacked the strength to occupy Rome, Ravenna, Venice, the is. of Sicily, Sardinia, and

Corsica, and the important sea-towns. Gregory the Great (590-604) converted them to orthodoxy and estab. Rome as the rallying point of the whole nation. In 756 the Lombards were defeated by Pepin the Frank who captured Ravenna, Pentapolis and sev. cities in Romagna, and Spoleto, which he yielded to the Pope, thus founding the temporal sovereignty of the Rom. Church. The conquest of the Lombards was completed by Charlemagne, Pepin's son, who deposed his father-in-law, Desiderius, the last Lombard king,

About this time, when I. was a divided country, governed by foreigners from a distance, the Lombard cities of Milan, Pisa, Genoa, Venice, and Florence began to rise in power and to gain some degree of independence. The Saxon emperor encouraged this spirit of municipal independence, which crushed the power of the turbulent counts. His son and grandson, Otto II and Otto III, however, had not his powers of discipline, and on the death of the latter in 1002 Ardoni, Marquis of Ivrea, claimed the crown and was



D. McLeish

LAKE ORTA IN PIEDMONT AND THE ISLAND OF S. GIULIO  
The church on the island was founded in the fourth century.

in 774, and was crowned emperor of the Romans in 800 by Pope Leo III.

The cities and Sicily still remained under the rule of the E. emperor, and were undisturbed by the Frankish conquest of the N. The Carolingian line ended in 887 with the deposition of Charles the Fat. The following 74 years was a period of misrule and anarchy. Before the end of the 9th cent., hordes of Saracens began to overrun Sicily, Calabria, and Apulia, while in the 10th cent. the plains of Lombardy were laid waste by the invasions of Magyars and Northmen. The Ger. King of Saxony, Otto I the Great (q.v.), was called in by the enemies of Berengar, who was forced to pay tribute and acknowledge Otto as his overlord. After this the It. king was more impotent than ever, and in 961 was deposed, I. being now considered as a fief of the Ger. empire.

supported by Lombardy and Pavia. The Saxon dynasty, however, continued in Henry of Bavaria, who gained the alliance of Milan, and crushed her rival, Pavia. On Henry's death in 1024, Aubert, Archbishop of Milan, offered the crown to Conrad, the Franconian King of Germany. During this cent. the power of the *commune*, a word first used in connection with Milan, the citizens of which city had united in a *parlamento*, gradually increased.

The Saxon policy of interference in the papal election was followed by Conrad's successor Henry III, who, finding 3 popes in Rome, abolished them all, and bestowed the see on a Ger. bishop of his own choosing. During the minority of his son, Henry IV (q.v.), who succeeded him in 1056, Archdeacon Hildebrand of Soana, afterwards Pope Gregory VII (q.v.)

threw his energies into strengthening the power of the papacy. He was determined to throw off the yoke of the Ger. Emperor and the Tusculan counts and to purify the Church morally by enforcing the celibacy of the clergy, by abolishing the investiture of ecclesiastics by secular authority, and by vesting the papal election in the hands of the Rom. people under the guidance of the clergy. During the ensuing struggle between Pope and emperor, Gregory was supported by Robert Guiscard and his son Roger, Norman adventurers who had occupied Apulia, Calabria, and Sicily, and had strengthened their hold on these dominions by obtaining papal investiture of lands which they agreed to hold as fiefs of the Holy See. In 1084, Henry IV seized Rome, but, after his death (1106), the War of Investitures was continued by his successors, and ended in the compromise Concordat of Worms (1122).

During the ensuing 3 decades the N. cities were each a single rep.; the bishops were superseded by consuls, who, assisted by a council of burghers, administered the law. Rome shook off for a time the temporal rule of the Pope, and under Arnold of Brescia (q.v.) estab. a short-lived rep. On the death of Conrad, his nephew Frederick I (q.v.), surnamed Barbarossa, was elected emperor. Under his rule the feud between emperor and Pope was renewed. He crossed the Alps in 1154, determined to exercise his imperial rights and to put an end to the warfare of the cities. Milan at once rose up in arms against him, but Frederick, after laying waste some smaller cities, marched on Rome and was crowned by Adrian IV (q.v.), the only Pope of Eng. birth. He marched upon Milan and forced it to surrender. But in 1159 Milan was again in revolt, and after a lengthy siege was laid waste (1161). Later, united in a league, called the League of Lombardy, the N. cities, in alliance with the papacy in 1176 inflicted a crushing defeat upon Frederick at the battle of Legnano. In 1177 the emperor made terms with the Pope for a 8 years' truce, and in 1183 a permanent peace was ratified by the treaty of Constance, which granted to the Lombard tns the right of war and self-gov. During the short reign of Frederick's successor, Henry VI, the strife between Guelphs and Ghibellines (q.v.) broke out in I. In Germany it had stood for a quarrel between 2 rival dynasties, but in I. the Guelphs represented the papal party, i.e. Rome and the League of Lombardy, while the Ghibellines stood for the imperial party. On Frederick's death (1190), Henry laid claim to the whole of I. and the 2 Sicilies, his claim being acknowledged in 1194. During his son Frederick II.'s long minority, the power of the Pope extended as far as Constantinople at the time of the fourth Crusade (1200-4). The spoils of war were shared with Venice, who thus became estab. as one of the most powerful commercial cities of the Mediterranean. In 1220 Frederick II was crowned king and emperor, the virtual ruler of Germany,

I., the Sicilies, and Jerusalem. He made a determined effort to crush the league and subdue the Pope, but the powers pitted against him were too strong. Pope Gregory IX excommunicated him in 1237, and Innocent IV declared him dethroned at the council of Lyons in 1245. The Hohenstaufen line ended in 1268 and in 1273 Rudolf I (q.v.) of Hapsburg was crowned emperor by the Pope, and 5 years later made a public recognition of the Pope's temporal sovereignty in the papal states. The Guelph party was now supreme in the N., but lost much of their influence in the S. when Sicily rebelled against Charles of Anjou and placed itself under Aragonese rule (1282). At the end of the cent. the Guelphs of Florence were divided into 2 factions—the Neri and the Bianci. In 1300 Boniface VIII called in Charles of Valois, who banished the latter faction and then undertook to manage the affairs of the rep. In 1309, the Pope, Clement V, being a Frenchman, the seat of the papacy was transferred to Avignon, where it remained till 1377.

This period of nearly 70 years was marked by great commercial prosperity. The N. tns still made war upon one another, but the burghers paid companies of adventurers, *condottieri*, to do the fighting. The rural counts lost their power and became citizens of the tns, and the office of *podestà* was now practically that of a judge. In many tns his place was taken by a new functionary, the *captain of the people*, who was a leader of Guelphs or Ghibellines, whichever party was in the ascendant, and whose powers, being ill-defined, tended to become unlimited. In the N. the popes lost their prestige as lt. princes by the removal of the Holy See to Avignon. Rome nominally obeyed her bishops, but the temper of the times was shown in the brief rep. (1347-54) set up in the city by Rienzi on semi-classical, semi-feudal lines. The duchy of Milan was governed by the powerful Visconti (q.v.) dynasty till 1447. Under the powerful Gian Visconti (d. 1354) the duchy conquered Genoa and a large portion of N. I. But in 1450 Filippo Visconti's son-in-law and general, Francesco Sforza, seized the Visconti's possessions with the aid of his Florentine ally, Cosimo de' Medici, and proved himself to be a wise and liberal-minded ruler. Until 1343 Florence had been subject to an adventurous foreigner, Walter of Brienne, Duke of Athens. For the following 100 years, with the exception of a short-lived revolution of artisans, the city was governed by an oligarchy headed by the Albizzi family. During this period Florence achieved the subjection of Pisa and extended her domains in Tuscany. But the oligarchy was opposed to the wealthy and democratic family of Medici (q.v.). In 1434 Cosimo de' Medici estab. a rep. of which he assumed the presidency. He strengthened his position by making the alliance with Francesco Sforza mentioned above. The presidency maintained by Cosimo became a dictatorship under his grandson, Lorenzo the Magnificent. The hist. of Venice was very different from

that of the other great It. states. In the 11th cent. the administration lay in the hands of the popular representative, the doge (q.v.). After a series of revolutions, however, the oligarchical principle was estab., and in 1310 the Council of Ten was formed. In the middle of the 14th cent. she began her struggle for maritime supremacy, which ended in victory (1381). In 1406 Venice added Verona, Vicenza, and Padua to her It. possessions, and during the long dogeship of Francesco Foscari (1423-57) extended her dominions in the mainland. I. was now divided into a number of commonwealths. Every one of them was governed by an oligarchy or an It. prince, but the individual enjoyed considerable liberty, and much encouragement was given to literature and art. It was the age of the It. Renaissance (q.v.).

Peace lasted till 1494, when a new age opened for I. Throughout the following cent. the country was a battlefield on which France and Spain fought out their quarrels and strove for new conquests. In 1494 Charles VIII of France invaded I. at the request of Lodovico Sforza, who was anxious to become Duke of Milan. Charles, after having the Medici expelled from Florence, marched S. and was crowned in Naples. In the meantime Lodovico assassinated his nephew, Gian Galeazzo, and raised Lombardy against Charles, who with difficulty made good his retreat to France. The way was now opened to other invaders, and Spain soon estab. a firm foothold in S. I. In 1499 Louis XII, the successor of Charles, seized Milan, and in 1504 invited the Emperor Maximilian to assist him in the conquest of Venice. In 1508 was formed the League of Cambrai with France, Spain, and Germany against Venice. But in 1512 the army under Gaston de Foix fought a fierce battle against the combined Sp., Venetian, and papal troops on the banks of the Ronco about 2 m. from Ravenna. The French were victorious but Gaston fell in the act of pursuing the enemy. The French returned in a few years. In 1515, their new king, Francis I, was victorious at the battle of Marignano, and entered Milan, but was later expelled by the troops of Emperor Charles V. These devastating wars ended in the peace of Cambrai (1529), by which Charles V was left in possession of I. In 1537 the French took possession of the ters. of the dukes of Savoy, but these were ceded to Philip, the son of Charles V, by the treaty of Câteau-Cambresis (1559). Venice, Genoa, Lucca, and San Marino were allowed to retain their independence.

Until the end of the 18th cent. I. ceased to have a hist. of her own. Wars in which she had no interest, but was the unfortunate sufferer, continued to be fought on her soil. Venice regained some of her lost power by the conquest of the Peloponnesus (1684), but this was recaptured by the Turks in 1715. Piedmont was ceded by Spain to Emmanuel Filibert, who regained Savoy and Nice. The war of the Sp. Succession (1701-13) led to a redistribution of It. land. By the treaty of

Utrecht (1713) Austria succeeded to the Sp. dominions, and Sicily was given to Victor Amadeus, Duke of Savoy, with the title of king. In 1720 he had to yield that is. to Austria in exchange for the kingdom of Sardinia. I. was subjected to a further rediv. at the end of the war of the Austrian Succession. By the treaty of Aix-la-Chapelle (1748), Milan, which had been captured by Austrians in 1713, was ceded with Tuscany to the House of Austria; the Bourbon, Charles III, was confirmed in his kingdom of the 2 Sicilies; his brother, Don Phillip, was given the duchy of Parma; Piedmont and Sardinia remained in the hands of the House of Savoy; and Modena and Genoa were placed under the protection of France, to whom the Genoese sold Corsica in 1768.

For 44 years I. enjoyed peace. Tuscany was ruled by lieutenants until the death of Francis I in 1765, when his second son, afterwards Emperor Leopold II (1790), was made grand duke. His rule was characterised by its agric. improvements, suppression of the Inquisition, and liberal reforms. The rule of Maria Theresa in Lombardy was also remembered as a period of internal peace.

The chief event after the treaty of Aix-la-Chapelle was the invasion of I. by the Fr. Republican armies in 1796. In the following year the Emperor, Francis II, was forced to sign the treaty of Campo Formio, by which Venice and the ters. N. of the Adige were given to Austria, and the rest of N. and Central I. was divided up into reps., such as the Cisalpine, Tiberine, Ligurian, Cispadane, and Parthenopæan reps. The great cities soon discovered that their freedom was but nominal under the presidency of Napoleon Bonaparte. In 1799 the Russian troops gained a victory at Trebia, and in 1800 Napoleon crossed the Alps and confirmed his previous victories at the battle of Marengo. The Cisalpine rep. was declared the *Italian* rep. in 1802, and Napoleon crowned himself King of I. at Milan in 1805, and in the following year he made his brother Joseph King of Naples. But at the overthrow of Napoleon in Paris (1814) the kingdom of I. crumbled to pieces, and at the Congress of Vienna (1815) the allies redistributed the country among themselves, but the Pope being left in possession of the Papal States.

After the Napoleonic invasion of I. the rule of the restored petty princes was more oppressive than ever; but national pride had been aroused and had given birth to a great hope for the future unity and self-gov. of the whole country. Secret societies, the most important of which was the Carbonari (q.v.), flourished among the educ. classes; risings broke out in the S. (1820); and in 1832 the fiery young patriot, Giuseppe Mazzini (q.v.), organised a political society called *Giovane Italia* (Young I.) for the unification of his country. Mazzini came to London, from where, by means of literature, he actively propagated his republican theories among his countrymen. In 1848, the year of revolutions, insurrections broke out in

Lombardy, but the Austrians won the battle of Custoza, and placed the country under martial law. Pius IX, who since 1846 had passed certain measures of reform, was torn between his desire to support It. freedom and his fear of making war on Catholic Austria. His authority, in consequence, weakened daily; he fled to Gaeta. Mazzini hurried back to Rome, and a rep. was set up with himself and 2 others as triumvirs. In 1849 Charles Albert received a crushing defeat from the Austrians under Radetzky, and abdicated at Novara, leaving his son, Victor Emmanuel II, to make the terms

resulted in the outbreak of a Franco-Austrian war (1859). In the same year the Austrians were defeated at Montebello, Palestro, Magenta, and Solferino; provisional govts. were estab. in Florence and Modena; and an insurrection broke out in the Papal States. S. I. rebelled against Francis II, the son of Ferdinand, and was assisted by Garibaldi, who won victories at Calatiffimi and Melazzo. Assuming the title of dictator, he entered Naples in Sept. 1860, Francis having fled. The united troops of Garibaldi and Cavour defeated the Papal States at Castelfidardo, and the Neapolitans at the Volturno.



W. F. Mansell

THE MEETING OF GARIBALDI AND VICTOR EMMANUEL  
Painting by Carlo Ademollo.

of treaty. Lombardy reverted to Austria, and a part of the Piedmontese ter. was also ceded. France decided to restore Rome to the Pope and sent Gen. Oudinot to besiege the city. He was defeated at Civita Vecchia by Garibaldi (q.v.), recently returned from exile in S. America. The Neapolitans, augmented by Sp. soldiers, marched northwards, and were also defeated by Garibaldi at Palestrina and Velletri, but in spite of these successes the Fr. troops succeeded in entering Rome, and the Pope returned in 1850.

At this time of despair, Cavour (q.v.) came into prominence as the champion of the national movement. In 1852 Victor Emmanuel appointed him prime minister. The Società Nazionale was formed with the motto 'Unity, Independence, and Victor Emmanuel.' The king and Cavour secretly encouraged the movement, though their only avowed aim was to expel the foreigner. In 1858 Cavour entered upon negotiations with Napoleon III which

Sicily and Naples were annexed to Sardinia in Oct., and Garibaldi hailed Victor Emmanuel as 'King of I.' In 1861, at the assembly of the first It. parliament in Turin, Victor Emmanuel was decreed King of I. In this same year Cavour died. Rome was still held by the Pope and the Austrians were in possession of Venice. In 1862 Garibaldi, on his own initiative, raised troops to liberate Rome, but was defeated at Aspromonte. Fr. troops had garrisoned Rome since 1849. By the Franco-It. Convention of 1864, the French agreed to evacuate Rome within 2 years, on condition that the Papal States were recognised, and the cap. of I. was moved from Turin to Florence. In 1867, in spite of the agreement of 1864, Garibaldi made another attack on Rome and consequently Napoleon sent back his troops, who defeated the Garibaldians at Mentana. Rome continued to be controlled by France until 1870, when, during the Franco-Prussian war, the It. army

under Cadorna, after a brief resistance entered the city. In 1871 Rome was inaugurated as the cap. of the kingdom, but the Pope, Pius IX, refused to abandon his temporal sovereignty, and withdrew as a voluntary prisoner to his own domains, which were allowed the privilege of extraterritoriality.

The consolidation of I. was slow and difficult, owing to the great social differences between N. and S. In 1878 Victor Emmanuel died and was succeeded by Umberto I, Pius IX being succeeded by Leo XIII in the same year. Umberto's reign was characterised by electoral reform (1881) and foreign colonisation. Somaliland, along the N.E. coast of Africa, was acquired between 1880 and 1890, and the dependency of Eritrea was founded in 1882. I.'s claims upon Abyssinia (see ETHIOPIA) led to war, which ended in an It. defeat at Adowa (1896), and the restoration of all land to Abyssinia by the treaty of Addis Ababa (1896). In 1882 I. joined Germany and Austria, forming the Triple Alliance, largely owing to her distrust of France, though it implied a renunciation of her irredentist claims in the N. and along the Adriatic. In 1900 Umberto was assassinated and was succeeded by his only son, Victor Emmanuel III (q.v.). At the beginning of the new cent. I. entered upon more friendly relations with France, the Triple Alliance being still maintained. In the dissensions in Morocco in 1906-11 she gave her support to France against Germany, while France acquiesced in It. ambitions in Tripoli. In Sept. 1911 war broke out between I. and Turkey in connection with the rights and privileges of It. subjects in Tripoli. In Nov. of the same year the It. Gov. formally proclaimed the annexation of Tripoli and Cyrenaica, which was ratified by Turkey in the treaty of Ouchy in Oct. 1912. Meanwhile, at home, the industrialisation of I. was giving rise to acute problems of social reform, and led to the rise of left-wing political groups, centred in the N. There was a serious outbreak of strikes and rioting in 1914. After the declaration of war between the Entente and the Central Powers in Aug. 1914, I. at first maintained her neutrality. As the price of continued neutrality, I. demanded concessions from Austria in the Trentino, Istria, Dalmatia, and Albania. Although Germany favoured these claims, Austria rejected all but a small extension of the It. frontier. Sonnino (q.v.), now It. foreign minister, then opened negotiations with the Entente, and finally, on 26 April 1915, the secret treaty of London was signed, by which fulfilment of I.'s territorial claims was promised together with an immediate loan of £50,000,000. On 23 May 1915 I. declared war on Austria-Hungary. The It. Army was poorly equipped, while for the main offensive launched on the Isonzo and for the operations in the Trentino only some 400,000 men were available. (See ISONZO; ITALIAN FRONT, FIRST WORLD WAR CAMPAIGN ON; WORLD WAR, FIRST.) Not until 1916 did

I. become actively at war with Germany. As a result of Sonnino's foreign policy the unity and independence of Albania were proclaimed under the protection of I., while in April 1917 the treaty of St Jean-de-Maurienne was concluded with France and England, delimiting I.'s share in the partition of Asia Minor. In autumn 1917 an offensive was started on the It. front which resulted in the disaster of Caporetto (q.v.) in Oct. This defeat stiffened It. resistance and in June 1918 the reorganised It. army defeated the Austrians at the battle of the Piave, and in Oct. Austria sued for an armistice. At the end of the struggle the resources of I. were exhausted, her losses in men amounted to half a million, and her great effort had reduced the country to a worse state than that of her allies. The fact, however, that for I. the war ended with a military victory encouraged a Nationalist movement, opposed to more moderate opinion in favour of an entente between I. and the succession states. The Nationalists demanded Fiume as well as the territorial gains promised in the treaty of London. (See FIUME.) The Adriatic problem (see ADRIATIC QUESTION) was unsolved and It. dissatisfaction with the Peace Treaty caused the resignation of Orlando, who was succeeded by Nitti. Domestic unrest in I. was heightened by the feeling aroused over the allied intervention in Fiume, following the *coup d'état* of D'Annunzio (q.v.) who on 12 Sept. 1919 occupied the city. The Adriatic Question was settled tentatively by the treaty of Rapallo, whereby I. surrendered the Dalmatian coast but secured sovereignty over Zara (Zadar), while Fiume was made an independent state. It remained for Mussolini to reach a definitive settlement, known as the treaty of Rome, Jan. 1924, whereby Yugoslavia exercised control over Port Barco and the Delta, and I. over Fiume. There also followed the Nettuno Commercial Agreements, but these were not ratified by the Yugoslav Gov. until 1928.

Benito Mussolini (q.v.) came into power in 1922 from being the leader of the *Fasci di Combattimento*, first organised by him in 1919 (see FASCISM). In the belief that I.'s ills were due to left-wing propaganda, the Fascist organisation was created for the purpose of suppressing Communism, and between it and the various leftist organisations a ruthless struggle began. In 1921 the Fascists were reorganised into a political party and now returned 30 members to Parliament, allying themselves with the Nationalists. A conflict with the gov. became inevitable. In 1922, taking advantage of the weak gov. leadership and the continuing social unrest throughout the country, which rallied much moderate opinion to their support, Mussolini organised the Fascist march on Rome. The Fascist columns advanced on Rome on 28 Oct., and 2 days later Mussolini arrived from Milan in response to a royal summons. He at once formed a cabinet in which he combined the premiership with the ministries



of foreign affairs and the interior. At the elections held in April 1924 the Fascists gained an absolute majority. Mussolini retained the form of parl. gov. for some time, and there was, at first, an organised opposition which hoped to oust Mussolini on the strength of the anti-Fascist feeling aroused by the murder of the Socialist, Matteotti. But Mussolini's policy of social reform, and the apparent internal peace he had estab., rallied the mass of the people to him, and he was soon able to suppress any remaining opposition without difficulty or fuss. Any prominent political opponents still left, e.g. Sforza (q.v.), went abroad or into prolonged political retirement. In domestic affairs the Fascist Gov. set the country to work, re-estab. the 8-hr day, and developed the policy of organising labour into syndicates, which were a species of trade unions, including both employers and workers, and under state supervision. An agreement with the Pope, and subsequent moderation by Mussolini on religious questions, gave him at least passive support from many devout Catholics who never became active Fascists.

In foreign affairs I. successfully encountered many difficulties—with Yugoslavia over Fiume (see above), with Greece over the murder of Gen. Tollini of the Albanian Frontier Commission, followed by the It. occupation of Corfu; with France over the treatment of It. minorities in France and Tunisia; with Turkey over Turkish fears of an It. annexation of Anatolia. I. was also a signatory to the Locarno treaties.

A rapid increase in pop., coupled with a dearth of war materials, led I. along the road of imperialism. Fascist policy tended to even greater aggressiveness, notably in rivalry with France, both in naval construction and in agitation for the revision of the Versailles Treaty. But partly owing to France's then dominating position in Europe, and Mussolini's dispute with the Vatican over jurisdiction in the educational sphere, the dictator was obliged to play the role of protagonist in the movement for a limitation of armaments and European security. But 5 years later Mussolini's aggressive policy towards Abyssinia sowed the seeds of a new European conflagration, besides menacing the whole existence of the League of Nations. Notwithstanding the existence of various treaties and conventions guaranteeing the integrity of Abyssinia, Mussolini announced his intention of annexing the country, and by May 1936 the It. forces were in occupation of the Abyssinian cap. (see ITALO-ABYSSINIAN WAR, 1935-6). Thus, in addition to the great ters. conquered in 1911, vast new regions were added in 1936; yet the number of Italians settled in E. Africa scarcely ever exceeded 30,000. The League of Nations considered collective action against I., but the idea was eventually abandoned. As a consequence the various European nations agreed to recognise officially the It. conquest of Abyssinia, and in 1938 as a prerequisite to recog-

nition Great Britain entered into an agreement with I., designed to prevent It. aspiration in Africa and It. support of Gen. Franco in the Sp. Civil War (q.v.) from becoming a source of open contention between the 2 countries. The agreement was not, however, put into effect until after the Munich Pact when Mussolini's prestige rose considerably as a result of his part in the settlement (see EUROPE, History). This event strengthened the ties between I. and Germany (already strong: the Axis was formed, Oct. 1936), even though the Ger. annexation of Austria earlier in 1938 had appeared to frustrate Mussolini's ambition of achieving a dominant position in SE. Europe. I.'s acquiescence in the annexation nullified the Franco-It. Pact of 1935 which was designed not only to regulate relations in Africa but also to preserve the independence of Austria. Later in the year (1938) the pact was formally denounced as a hostile gesture towards France whilst It. claims were launched for Djibuti, Tunis, Corsica, and Nice. Mussolini's aggressive intentions became more manifest, while at home his autocratic position was strengthened by the abolition of the Chamber of Deputies. In its place a Chamber of Fasci and Corporations was set up, having 800 members from the National Council of the Fascist party and the National Council of Corporations, nominated by Mussolini. The gov. had the right to promulgate decrees with the force of law, which were then placed before the chamber. The chamber dealt with constitutional laws, budget estimates, and also any matters previously authorised by Mussolini to be so dealt with. The real ruling authority was the *Gran Consiglio del Fascismo* (Fascist Grand Council), which was composed of the quadrumviri of the March on Rome, appointed for an indefinite period, a certain number of members (ministers and other high dignitaries) appointed for as long as they held their offices, and an indeterminate number of members appointed for 3 years by the head of the gov.

In April 1939 It. troops invaded Albania. King Zog fled, and the country was occupied, Victor Emmanuel III becoming also King of Albania. In May I. and Nazi Germany signed a treaty of alliance.

On the outbreak of the Second World War in 1939, I. was at first neutral, though obviously friendly to Germany. Nevertheless the following year, with the decline of allied fortunes in the W., Mussolini became convinced of Germany's victory, and on 10 June I. declared war on France and Great Britain. But, contrary to Mussolini's probable belief, the collapse of France did not bring the war to an end, and I. gained few territorial benefits. Economic conditions in I. became increasingly more serious. In Oct. I. launched an attack on Greece, but the stout resistance maintained by the Greeks caused the campaign to linger on through the winter with catastrophic results for the Italians. Moreover the It. Navy was

severely crippled by the attack which the R.A.F. made on the naval base of Taranto (Nov. 1940). Other events parallel with the lack of success in Albania, where an It. army was routed by the Greeks in Mar. 1941, were the loss of the prov. of Cyrenaica (see AFRICA, NORTH, SECOND WORLD WAR CAMPAIGNS IN) and the successful revolt of the Ethiopians which, aided by Brit. arms, resulted in the loss of Eritrea (Mar.) and the fall of Addis Ababa (April) (see ITALIAN EAST AFRICA, SECOND WORLD WAR CAMPAIGNS IN). Germany, however, succeeded in retrieving its fortunes in both N. Africa and the Balkans,

excluding sev. leading members from the gov. Dissension within the Fascist party, however, broke into open revolt when Mussolini, after 2 meetings with Hitler in July, was unable to obtain a promise of adequate Ger. support against the coming invasion. By order of the king Mussolini was arrested, and Badoglio (q.v.) was called upon to form a gov. He at once put out peace feelers while at the same time publicly proclaiming the continuation of the war. A secret armistice was agreed while the Germans, in anticipation of some such move, tightened their grip in N. I. and also occupied the Rome airfields.



NAPLES AND VESUVIUS

Canadian Pacific

and the reflected prestige helped to maintain the Fascist regime in I. which fell more and more under the control of Germany.

I. was associated with Germany in the defeat of Yugoslavia, and gained some ter. on the Dalmatian coast. I. also provided an occupying force for Greece. By June I. was at war with Russia and by the end of the year with the U.S.A. I.'s economic situation deteriorated still further, and her industry was entirely tied to Germany's war machine. With Ger. help, efforts were made to strengthen the hold of the Fascist party. At the end of the year I. occupied Nice and Corsica at the same time as the Germans moved into S. France.

The year 1943 (see ITALIAN FRONT, SECOND WORLD WAR CAMPAIGNS ON) saw the fall of Mussolini and an It. surrender to the Allies. After the allied invasion of Sicily Mussolini made a last bid to prepare the mainland of I. against invasion and to ensure the loyalty of the Fascist party by

On 8 Sept. following the allied landing at Salerno the armistice was declared. Badoglio set up his gov. in Brit. occupied ter., and on 11 Oct. I. declared war on Germany. The king was likewise maintained by allied authority, though his long association with Fascism had produced an anti-monarchical reaction in I. as a whole. In the N., on the other hand, Mussolini having been rescued from allied hands by Hitler's emissaries attempted to set up a republican Fascist régime. He revenged himself on those of his former supporters who had betrayed him but were now in his power. Among them were Ciano and de Bono who were tried and shot (Jan. 1944).

In June 1944 the allied armies entered Rome, and Victor Emmanuel retired in favour of his son, Prince Umberto. He did not, however, abdicate. Badoglio resigned, and Bonomi (q.v.), an elder statesman from the days before Fascism, formed a new gov. With an It. Gov. in Rome most of the occupied areas of S. I. were

handed over to It. control, and the gov. was recognised diplomatically by the U.N.

On 28 April 1945 Mussolini, with his mistress and 12 of his cabinet, was shot by members of the Partisan Movement which was resisting the Fascists in N. I. A few days later, 2 May, the Ger. Army in I. surrendered, and the liberation of I. was completed (see ITALIAN FRONT, SECOND WORLD WAR CAMPAIGNS ON). Bonomi, who considered his interim task now at an end, resigned, and was succeeded by Parri, a leader of the Partisans, who formed a coalition gov. with the Socialist leader, Nenni, and the Liberal leader, Brosio, as vice-premiers while Togliatti became minister of justice. A consultative assembly was set up, and local elections were held at the end of the year. Parri resigned in Nov., and a new gov. comprising 6 parties was formed by de Gasperi (q.v.). By this time the Allied Military Gov. had handed over to the It. Gov. the control of all ter. except Venezia Giulia and the Udine prov., while the economic situation was eased by supplies which reached I. from foreign sources through U.N.R.R.A.

On 9 May 1946 Victor Emmanuel formally abdicated and his son was proclaimed king as Umberto II (q.v.). But a referendum on the future of the monarchy held in June resulted in a majority in favour of a rep., and Umberto subsequently went into exile in Portugal. Elections were held for the Constituent Assembly under a new system of proportional representation which resulted in a gain of 207 seats for the Christian Democratic party, 115 for the Socialists, and 104 for the Communists out of a total of 556. The Constituent Assembly met on 25 June and proclaimed a rep., electing de Nicola as provisional president. De Gasperi continued as premier of a reconstructed coalition gov., the first for 25 years to consist of deputies freely elected. But the multiplication of small party groups, the wide divergencies among different sections of the Christian Democrats and the Socialists, and the fact that no single party had a working majority boded ill for the future political stability of the country.

The first event which confronted the new gov. was the peace treaty with the Allies, signed on 10 Feb. 1947. The It. Gov. at the time of signing registered a protest at the terms of the treaty while affirming that they would be loyally met. The treaty was an occasion of national mourning, and the terms whereby Istria, Fiume, and ter. E. of the Isonzo were ceded to Yugoslavia (with the exception of the newly created Free Ter. of Trieste) were considered a sad blow to I. and they did not satisfy Yugoslav ambitions. The chief among other conditions were that the Tenda-Briga area in the Maritime Alps was ceded to France and the Dodecanese Is. to Greece, while I. also lost her colonies in Africa and agreed to respect the independence of Ethiopia. (Since 1950, however, I. has administered the former It.

Somaliland on behalf of U.N. as a trusteeship ter.) I. agreed to pay substantial reparations over 7 years. Provisions were also made for the demilitarisation of frontiers and of is. in the Mediterranean, and for the limitation of armed forces. De Gasperi, at the head of a new coalition gov. (22 Jan. 1947), weathered the storm created by the peace treaty. Further unrest was being caused by the shortages of raw materials and other economic difficulties. The withdrawal of left-wing support overthrew the coalition gov. In May, but the following month de Gasperi formed a further gov. dependent mainly on the Christian Democrats. The Constituent Assembly, due to dissolve on 24 June, prolonged its own life until the end of the year, thus automatically postponing further elections, and it was in conditions of considerable political uncertainty that the Assembly addressed itself to its prime task of framing a constitution, which was passed Dec. 1947, and became law on 1 Jan. 1948 (see *Constitution* above). In May 1948 Luigi Einaudi was elected President of I. for a 7-year term.

The administration survived the critical period 1947-8 with relative ease. Strong Communist influence in the industrial N. was also beginning to affect the traditionally monarchist S. of I.; but here there remained powerful pockets of neo-Fascist influence. Neo-Fascism and monarchism also had some influence on the right-wing fringes of the Christian Democratic party. The general election of 1948 estab. the Christian Democrats as the major party of the right, though generally progressive in character. The successive de Gasperi administrations (he headed 8 between 1945 and 1953) always had to rely on support from other parties, latterly more and more on the right-wing Socialists and the Liberals, for, though the Christian Democrats were the largest single party in Parliament, they never had an overwhelming majority over all other parties combined. As time went by the leftist elements in the coalitions became increasingly dissatisfied with the gov.'s internal policy, which they regarded as insufficiently progressive. Considerable social reform was, however, carried out by de Gasperi and his successors, notably in the sphere of land reform, which especially affected S. I. But post-war I. has had to struggle continually against the poverty and unemployment irritated by her dense pop. and the lack of emigration facilities to drain off the surplus labour pool which undoubtedly exists. De Gasperi's foreign policy brought I. into N.A.T.O. (1949), and in the same year she became a founder member of the Council of Europe. His moderate influence soon re-estab. I.'s status in W. European politics: his alliances with the W. were bitterly opposed by the Communists. In 1952 I. entered the European Coal and Steel Community (q.v.). She had also planned to be a member of the European Defence Community (q.v.).

The Christian Democrats lost ground in the general election in 1953. In July de

Gasperi formed his eighth and last ministry. Only his own party members joined it, and it only lasted for a few days. De Gasperi's resignation marked the end of an era of relative political stability in I. Since July 1953 I. has been governed by a series of coalitions, though all under different Christian Democrat premiers; but generally I. policy has lacked the continuity it had under de Gasperi. The year 1953 was one of considerable industrial unrest, which partly explains the leftist gains in the elections. In the following year the Montesi scandal became public, was exploited by the left, and for a time threatened the gov. It was alleged that a girl named Montesi, whose body was found in the sea at Ostia in 1953, had not died naturally by drowning but as a result of a drug orgy in which the son of the foreign minister, Piccioni, was involved; and that the true facts had been suppressed by the police on political grounds. The gov. survived, but Piccioni, one of the ablest members of it, resigned; and the case continued to disturb I. politics until 1957, when the trial of Piccioni's son and 2 others allegedly involved in the case opened.

In Oct. 1954 I. and Yugoslavia finally reached agreement over the Trieste problem, thus settling a 9-year dispute. Under it, I. obtained an area including Trieste city, and Yugoslavia the area around it, where the pop. was mainly non-Italian. Trieste was to remain a free port. Although the decision displeased the I. extremists, who had wanted the entire Trieste ter. to be returned to I., it was on the whole a solution more favourable than I. could have envisaged at the end of the war. On the failure to ratify E.D.C., I. was a party to the London and Paris Agreements (q.v.) which estab. a permanent defensive organisation in W. Europe, and she is a member of W. Union (q.v.). In 1955 Gronchi succeeded Einaudi as president of the rep. During 1956 the prestige of the I. Communists declined as the result of the risings in Hungary and Poland, and of the fluctuations in Soviet statements on party philosophy. By 1957 the alliance between the Communists and left-wing Socialists under Nenni had been broken. But Communism remains an extremely powerful force in I., though the influence of the Catholic Church is an important counter to this, even in the industrial N., as well as the considerable social reforms effected in the past 12 years by the more right-wing parties. Since the Second World War a notable feature of I. foreign policy, apart from the W. alliance, has been the stress on friendship with the Arab states, an attitude shown strikingly at the time of the Suez crisis in 1956.

**Minority problem.** I. has (1957) about 200,000 inhab. who have no love for I. These are the Ger.-speaking people who live in the northernmost prov. of Bolzano, bordering on Switzerland and Austria. Petitions demanding a severance of the ties with I. were sent to the Paris conference of 1946. Some of the petitioners

hoped for an independent Tirolese State, others called for reunion with Austria. In the result Grüber, the Austrian foreign minister, and de Gasperi, the I. Prime Minister, signed an agreement between themselves at Paris, Grüber acknowledging the Brenner frontier, de Gasperi, in return, promising local self-gov. or autonomy within the framework of the I. State for the prov. of Bolzano and the few mixed-language coms. in the S. prov. of Trento. This agreement was highly unpopular in both I. and Austria, both the signatories being accused of signing away a national birthright. Since that date there has been continued agitation among the Ger.-speaking minority for a severance of the ties with I., and some ill-judged disciplinary actions by the I. authorities have given colour to allegations that the I. administration does not always act fairly towards the minority in this area.

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For Architecture, Art, Language, and Literature, see ITALIAN.

**Italy, British Army in (First World War).** The disastrous I. defeat at Caporetto (q.v.) occurred in Nov. 1917, but before the close of the year the Brit. Gov. sent out 5 divs. These reinforcements were a vital moral influence in restoring what seemed a desperate situation. In Mar. 1918 two of these divs. were, however, sent to France in view of the impending Ger. attack on the W. Front. When the Austrian offensive of May 1918 opened the Brit. forces, under the command of the Earl of Cavan, were disposed on the Asiago Plateau. While the Italians were repulsing the enemy in the Adamello passes the British repulsed them on the plateau and both allies took many prisoners and guns. On 15 June the Austrians

launched a heavy offensive from Asiago to the sea with 600,000 men, crossing the Piave the same day at Montello and near the mouth. The Brit. forces assisted in hurling the Austrians across the riv. again and involving them in the tremendous defeat of the early autumn, which ended in the armistice with them being signed on 4 Nov.

**Italy Star**, Brit. military decoration, instituted in 1945 for entry into operational service on land in Sicily or in Italy at any time during the campaign there from the capture of Pantellaria on 11 June 1943 until 8 May 1945. The ribbon is in it. colours, green, white, and red.

**Itch**, any irritating skin disease. The commonest form is scabies, a disease caused by the animal parasite, *Sarcoptes scabiei*, which burrows under the skin and causes intense irritation leading to scratching on the part of the patient with resulting rawness, scabs, and eczematous conditions. It may occur on any part of the body, but rarely on the scalp and often between the fingers. The treatment is application of sulphur ointment. **Barber's I.** is caused by a fungus and affects the hair follicles, particularly those of the beard. The inflammation set up leads to the formation of pustules at the root of each hair affected. **Cuban I.**, an irritating skin disease introduced by soldiers from Cuba; it is supposed to be a mild variety of smallpox. **Coolie I.**, a skin inflammation common amongst field workers in Assam and other tropical countries. It is caused by the larvae of *uncinaria duodenalis*, and the eruptions are confined to the surface of the lower extremities.

**Itch-mite**, name given to the species of Sarcoptinae, a subfamily of arachnids which are parasitic on the skin of mammals, birds, and insects. *Notodres*, *Protopodectes*, *Sarcoptes*, and *Chorioptes* are among the commonest genera. *S. scabiei* attacks the skin of man, and produces the disease known as scabies (see ITCH).

**Iteso**, or **Itesot**, see TESO.

**Ithaca**: 1. Colloquially called **Thiaki**, one of the Ionian Isles, and lies E. of Cephalonia. It has an area of 40 sq. m., and is mountainous. Wine and olive oil are the chief productions. The chief tn is I. or Vathy (pop. about 3200). This is, is noteworthy as having been the home of Ulysses. Pop. about 1250.

2. Tn, cap. of Tompkins co., New York, U.S.A., on Cayuga Lake. Cornell Univ. is situated here. I. manufs. firearms, business machines, salt, fertilisers, cement, clay and wood products, clothing, and electric clocks. Pop. 29,257.

**Ithome**, name of a fortress and mt in Messenia, anct Greece. The fortress played an important part in the Messenian wars waged against Sparta during the 8th, 7th and 5th cents. BC.

**Itil**, cap. of the medieval Khazar Khanate (see KHAZARS), was situated on the lower Volga near the present Astrakhan.

**Itinerary** (Lat. *iter*, a journey), name applied by the Romans to a list of the

stopping-places, or halts, with the distances from one to another, between 2 places of importance. The I. was generally divided into 2 classes, one having the character of a book, and the other being a kind of travelling map. Of the former, the most important are the *Itineraria Antonini* and *Hierosolymitanum*. Of the latter only one great example remains, viz. the famous *Tabula Peutingeriana*. The first of the 2 I.s named above gives the stations and distances along the imperial highways; it dates from the reign of Diocletian (AD 285-305). The second, made by an anonymous pilgrim to Jerusalem (AD 333), gives the stations and distances along the road from Bordeaux to the Holy City and from there to Milan via Valona and Rome. Neither was an official compilation. The *Tabula*, likewise a private document, is a copy made in the 12th cent. AD from the 4th-cent. map of Castorius. See R. Miller, *Itineraria Romana*, 1916.

**Ito Hirobumi**, Prince (1838-1909), Jap. statesman. In 1863 he worked his way before the mast to London, and joined others of his nation who had come to Europe to study W. civilisation. He returned to Japan in 1865, and took an active part in the social and political reorganisation of the country. From being minister of public works, he rose to the rank of Prime Minister in 1880, which office he held 4 times. He was selected by the Mikado to study the various forms of constitutional gov. in Europe, and was the author of the Jap. constitution of 1889, which in many respects was more liberal than that of sev. European countries. He was made prince in 1907, and appointed Resident-General of Korea after the Russo-Jap. war, meeting his death at the hands of a Korean at Kharbin.

**Itri**, It. tn in Lazio (q.v.), 36 m. SE. of Latina (q.v.). It was severely damaged during the Second World War. Fra Diavolo (q.v.) was b. here. Pop. 3000.

**Itú**, tn in Brazil, at 2000 ft, on the R. Tietê, 45 m. WNW. of São Paulo. It is the centre of a great cotton, sugar, and coffee producing dist., and has cotton factories and iron and bronze foundries. There is an airport. Pop. 38,000, including suburbs.

**Iturbide**, Agustín de (1783-1824), for 10 months Emperor of Mexico, was a Creole of Basque parentage. In early life he much distinguished himself as a soldier in the Royalist cause, which was then endangered by Hidalgo's and Morelos's rebellions. On 18 May 1822 he accepted from his devoted soldiers the title of Emperor Agustín I, for the Sp. Cortes refused to recognise the virtual independence of Mexico as set forth in the treaty of Córdoba. After a compulsory abdication (1823), the result of his arrogance and despotism, he went into exile on the Continent and in London, and on returning was met and shot. See M. André, *La Fin de l'Empire espagnol de l'Amérique*, 1922; W. S. Robertson, *Iturbide of Mexico*, 1952.

**Iturea**, dist. in anct Syria, between

Damascus in the S. and the Lake of Tiberias in the NE. Before the time of Augustus it was ruled by native princes; but that emperor gave it to the family of Herod.

**Itzehoe**, Ger. tn in the *Land* of Schleswig-Holstein (q.v.), on the Stör, 37 m. SW. of Kiel (q.v.). It grew up around a fortress built by Charlemagne (q.v.). During the Thirty Years War it was the H.Q. of Wallenstein (q.v.), and in 1657 it was razed by the Swedes. There is an abbey (13th-17th-cent.), and a fine baroque church. Cement, pumps, nets, and paper are manuf. Pop. 35,000.

**Iudrio**, see **ISONZO**.

**Iuka**, tn in Mississippi, U.S.A., co. seat of Tishomingo co., is 22 m. SE. of Corinth. Here the Federals under Gen. Rosecrans defeated the Confederates under Gen. Price in 1862. Pop. 1300.

**Iulus**, see **ASCANIUS**.

**Iulus**, see **JULUS**.

**Ivan**, name of 6 rulers of Moscow and Russia, of whom the following played particularly important roles:

**Ivan I** (1301-40), prince of Moscow 1305, grand prince 1328. He was nicknamed 'Kalita' or 'Money-Bag.' Cunning and economical, he began the process of consolidating Russian ters. Under him Moscow became the metropolitan see of the Russian Church in place of Vladimir.

**Ivan III** (1440-1505), sometimes called 'the Great,' grand prince 1462. He greatly extended the Muscovite ter., absorbing the Novgorod rep., Tver, and sev. other principalities. He married a niece of the Byzantine Emperor Constantine IV Paleolog. He finally freed Russia from the Tartar yoke by stopping the payment of tribute to the Golden Horde (q.v.), 1480. He subsequently claimed the title of Tsar, i.e. Caesar. He introduced a legal code, 1497.

**Ivan IV** (1530-84), called 'the Terrible,' Tsar of Moscow and 'all Russia.' He succeeded to the throne in 1533 and was crowned Tsar at the age of 17. From 1547 to 1560 he ruled with the aid of a group of good advisers from among the clergy and boyars, called a Zemskiy Sobor (Assembly of the Land) (q.v.); he introduced a new code of law (1551), conquered Kazan' and Astrakhan, and estab. diplomatic and commercial relations with England. From 1560 to the end of his life, however, he became almost insanely tyrannical and was responsible for a number of ruthless massacres. Under him Siberia was conquered in 1582. He was married 7 times.

**Ivanov, Nicholas** (c. 1858-1918), Russian soldier; son of a common soldier accidentally killed when I. was 12 years old at a military review in the presence of Alexander II, who had I. admitted to a military school and helped his advancement. In the First World War he commanded one of the armies operating in Galicia; won much distinction, capturing Lemberg and Przemyśl. In 1915, after the Russian retreat, he resigned his command, but was retained at H.Q. by the tsar—who telegraphed to him when the revolution

threatened. I. thereupon made a dash for the cap.; but when he learned that he would be totally unsupported there, he desisted. On 16 Feb. 1918 it was reported at Petrograd that I. had been killed in action at Kiev.

**Ivanovo**: 1. Oblast in central Russia, NE. of Moscow, situated on a level plain and partly covered with mixed forests. There are peat deposits. It has an extensive textile industry, an engineering industry, and old handicrafts are practised. Agric. produce consists largely of potatoes and other vegetables and dairy products. The prin. tns are I., Kineshma, and Shuya. Area 9500 sq. m.; pop. 1,500,000 (Russian).

2. (1871-1932, **Ivanovo-Voznesensk**) Cap., economic and cultural centre of the above, 145 m. NE. of Moscow. It is the second largest textile industry centre in the country (after Moscow); it also has engineering (textile and peat-working machines) and food industries, and there are 2 peat-fed power stations. I. dates from the 14th cent.; since the early 17th cent. it has been known as a commercial and manufacturing centre, though it remained a vil. until 1871. Prior to 1861 most workers and factory owners were serfs. From the 1880's it was a centre of the labour movement, and in 1905 was the seat of the first Soviet of Workers' Deputies. It was one of the main strongholds of the Bolsheviks, both before 1917 and during the period of 'proletarian dictatorship' (1917-36). Pop. (1956) 319,000 (1871, 18,000; c. 1914, 168,000; 1926, 111,500; 1932, 182,000; 1939, 285,000).

**Iveagh, Edward Cecil Guinness, 1st Earl** of (1847-1927), philanthropist, b. Clontarf, co. Dublin; third son of Sir Benjamin Lee Guinness, M.P., 1st Baron. Educ. at Trinity College, Dublin. From 1886 he was chairman of the limited company then formed to take over the business of Guinness's brewery, but he retired from active work on the board in 1889. His first charitable donation was a quarter of a million to be spent in building homes for the poorest workmen of London and Dublin. This fund is now controlled by the London and Dublin Guinness Trusts for Housing the Poor. Guinness became a peer in 1891, and soon afterwards embarked on a scheme for clearing and replanning 7 ac. of slum in Dublin city. Here he arranged for labourers' dwellings, a public pleasure garden, swimming baths, and a concert hall. Although a Unionist, he was offered the Lord-Mayoralty of Dublin in 1909. In 1919 he was made an earl.

Ken Wood Mansion, Hampstead, together with its pictures and furniture, was bequeathed in 1927 by I. for the benefit of the public, together with an endowment fund of £50,000. He also bequeathed the grounds and park of some 74 ac. to the public. The grounds and park are controlled by the L.C.C.; the mansion and its contents and the endowment fund are controlled by trustees. There are 68 paintings, including representative pictures by Boucher, Crome, Cuyp, Gainsborough, Frans Hals, Hoppner, Landseer,

Lawrence, Morland, Van Ostade, Raeburn, Rembrandt, Reynolds, Romney, Rubens, Turner, Van Dyck, and Vermeer. See *Dictionary of National Biography*, 1922-30.

Ivel, trib. of the Great Ouse, flowing N.E. and N. through Beds, England. The confluence is at Tempsford. Length 30 m.

Iverna, see **IRELAND**.

Ives, Frederic Eugene (1856-1937), Amer. photographic inventor. At the age of 18 he was put in charge of the photographic laboratory of Cornell Univ.; so remained till 1878, when he invented the first half-tone process; invented current process in 1886. He also invented in 1894 the photo-chromoscope, a device by which a single positive image in natural colours is produced by a combination of 3 negative ones. The reader is referred to I.'s own pubs. for the best account of his work. These include *Ischromatic Photography*, 1886, and *A New Principle in Heliochromy*, 1889.

Ivinghoe, vil. of Bucks, England, 9 m. from Aylesbury. It has a fine 15th-cent. church. I. Beacon (762 ft) and Ringshall or I. Common were acquired by the National Trust in 1926. I. mill, between I. and Pitstone, 3 m. N. of Tring, Herts, is probably one of the oldest remaining post-mills in England. It is preserved as an historic landmark. Pop. 807.

Iviza, see **IBIZA**.

Ivory, term properly given only to the material which forms the tusks of elephants; it is that modification of dentine, or tooth-substance, which in transverse sections or fractures shows lines of different colours, or striae, proceeding in the arc of a circle, and forming by their decussations minute curvilinear lozenge-shaped spaces' (Sir Richard Owen, *Lectures*, 1856). These tusks are sometimes of tremendous size, a single specimen occasionally weighing 200 lb., and are distinguished from the teeth of most animals in that they are imbedded in semi-solid vascular pulp, and continue to grow in size during the whole life of the elephant. The term ivory is often extended to a similar substance obtained from the walrus, narwhal, hippopotamus, etc. The I. from the African elephant is the most esteemed on account of its superior density and whiteness, but a certain amount is also obtained from India, Ceylon, Burma, and the is. of the E. Archipelago. In African elephants both the males and females have tusks, although those of the males are larger, but in the Indian species the females are practically tuskless. The 'fossil' I. obtained from the extinct mammoth in Siberia is too brittle to be of much value. Antwerp is the chief market for I. I. is valued according to the size and soundness of the tusks. The natives have discovered the superior value of newly obtained tusks, and palm off a large quantity of 'dead' I., which has been buried for cents., upon unwary traders. The special qualities of I., its beautiful texture and tints, its perfect elasticity and adaptability to the carver's tools, have been recognised from the earliest times, and examples of carved I. dating from the

time of Moses are still in existence. Vegetable I. is the name given to 'Corozo Nut,' the hard, white, potato-like endosperm contained in the seeds of the palm-like tree (*Phytelephus macrocarpa*) which grows in the low, hot valleys of the Andes. It is valued at about £10 a ton, and is used for buttons, etc. For another substitute for I. see **CELLULOID**. See **IVORY CARVING**. See also A. Maskell, *Ivories*, 1906.

Ivory, Vegetable, see **IVORY**.

**Ivory Carving**. Since earliest times ivory has been used either alone or in conjunction with silver and bronze as a decorative material. It has been a feature of the decoration of palaces, and the Romans sent an ivory throne to Persena, while in the 19th cent. an Indian prince sent one to Queen Victoria. Ivory has also been used a great deal for religious purposes in such things as crucifixes, the heads of pastoral staves, liturgical combs, and even altar-pieces. Secular works of art in which ivory has been employed include seals, hunting-horns, knick-knacks, snuff-boxes, toilet combs, mirror cases, chess-men, and draughts. Prehistoric man used pieces of bone, horn, and ivory for his sketch-book, and scratched on them drawings of animals. The ancients Egyptians and Assyrians used ivory for domestic purposes and for the decoration of furniture, and Egyptian ivory statuettes have also been found. The ivory sculpture of the medieval African empire of Benin is remarkable. The Greeks used ivory for the decorations on the trappings of their horses and for the bosses of their shields and for small boxes and caskets. Ivory was sometimes used by Greek sculptors in combination with the precious metals, as in the celebrated chryselephantine figures of Athena in the Parthenon (q.v.) and that of Zeus at Olympia, both by Phidias (q.v.).

Of Rom. ivories we possess numerous consular diptychs, often from writing tablets and plaques which are beautifully carved in relief. The subjects of these carvings were usually classical myths or images of Rom. gods. The earliest Christian ivories in existence date from the time of Constantine and among these we have pyxes carved from ivory tusks, plaques, and book-covers. Byzantine ivories have survived in considerable numbers and share with the mosaics the austere ideals of their age. Up to the end of the 14th cent. I. Cs. were usually of religious subjects, although often used for secular purposes, but after this date hunting scenes, deeds of chivalry, and pictures of tournaments were depicted, the sculptures being influenced by the romantic literature of the period. In India, ivory has been much used for caskets, many of which are extremely elaborate. Chinese ivories, often ingeniously trivial, frequently use the natural curve of the tusk to great advantage in figure carving. Jap. I. Cs. are liable to be niggling in detail and tortuous in form. They illustrate a wide range of legend and folklore, notably in *netesuke* (q.v.). In both ancient and modern times ivory has been used for sculpture, either

alone or in conjunction with bronze and jewels. Modern examples of ivory sculpture that may be mentioned are the 'Lamia' of George Frampton and the 'St Elizabeth' of Alfred Gilbert. See A. Maskell, *Ivories*, 1906.

**Ivory Coast**, Fr. colony on the W. coast of Africa, bounded on the S. by the Gulf of Guinea, W. by Liberia and Fr. Guinea, N. by Upper Senegal and Niger, E. by Ghana. Coastal plains extend inland about 40 m., beyond which the ground rises from a general height of about 1000 ft to the plateau of the Kong ter. (4757 ft), which is largely covered with almost impenetrable, primeval forest, interspersed with

French and 1893 foreigners. See T. J. Clozet, *Dix ans à la Côte d'Ivoire*, 1906; G. Hanotaux, *L'Empire colonial français*, 1929.

**Ivrea**, It. tn in Piedmont (q.v.), 34 m. NE. of Turin (q.v.), on the Dora Baltea. It dates from Rom. times, and has an 11th-cent. cathedral, a 14th-cent. castle, and other anct buildings. Typewriters and textiles are manuf. Pop. (tn) 11,400; (com.) 17,400.

**Ivry-la-Bataille**, Fr. vil. in the dept of Eure, on the Eure. Henry IV (q.v.) defeated an army of the League (q.v.) here in 1590. Musical instruments are manuf. Pop. 1300.



From 'In Lotus Land,' by H. G. Ponting

#### JAPANESE IVORY CARVERS

patches of savannah. The rivs. are of little importance, and all drain into the Gulf of Guinea. The chief products are maize, plantains, rice, bananas, pine-apples, and ground-nuts, all of which are cultivated by the natives; and rubber, coco-nuts, cocoa, the production of which is fostered by the French for export trade. There are also mahogany forests. Main exports are palm oil and kernels, mahogany, bananas, and cocoa. Chief imports are tobacco, wines, machinery, textiles, and motor fuel. There are 494 m. of railway and 3565 m. of motor roads, most of which feed the railway. The cap., Abidjan (pop. 117,000 Africans, 8000 Europeans), could be made into a first-rate port. There is some gold, and considerable deposits of manganese have been found. I. C. is represented in the Fr. National Assembly by 2 deputies, in the Council of the Rep. by 3 councillors, and in the Assembly of the Fr. Union by 4 delegates. Area approximately 180,000 sq. m.; pop. 2,447,961, including 15,000

Ivry-sur-Seine, Fr. tn in the dept of Seine, a SE. suburb of Paris. It has a hospice for incurables. There are breweries, earthenware, and engineering works. Pop. 42,400.

**Ivy**, or *Hedera helix*, family Araliaceae. It is an old-world plant, which climbs by means of aerial roots, bears 2 forms of leaves, and has small flowers which secrete a great deal of honey and are therefore pollinated by insects. The ground-ivy, or *Nepeta hederacea*, is a species of Labiatae unallied to the common I.

**Ivybridge**, small tn of Devon, England. It is situated in the valley of the Erue, about 10 m. NE. of Plymouth, and has paper mills. Pop. 2039 (1954).

**Ixelles** (Flom. Elsene), suburb of Brussels, Belgium, in the SE. of the city. It has manufs. of furniture, porcelain, pottery, organs, and chemicals. On its ter. are the restored abbey of the Cambre, occupied now by the Belgian Cartographic Institute, and the modern building of the National Radio Institute. Pop. 92,300.



**Ixia**, family Iridaceae, genus of about 30 S. African, cormous plants, of which *I. odorata*, *I. paniculata*, *I. patens*, and *I. viridiflora*, etc., are grown for their spikes of beautiful flowers.

**Ixiolirion**, genus of amaryllidaceous plants, of W. Asia. There are 3 species, and of these *I. kolpakowskianum* and *I. montanum* are cultivated in Britain.

**Ixion**, legendary king of Thessaly, son of Phlegyas, and husband of Dia. All men shunned him when he murdered his father-in-law, but Zeus in pity bore him to Olympus. I., however, abused the god's hospitality, and strove to seduce his wife. Embracing a cloud, which he believed to be Hera, he became father to the Centaurs. Zeus punished him in Tartarus by binding him to a fiery wheel in perpetual motion. There are variations of the legend.



IVY

**Ixodidae**, see TICKS.

**Ixora**, family Rubiaceae, genus of about 150 species of tropical shrubs or trees, of which *I. coccinea* and varieties, *I. chinensis*, and *I. lutea* are popular stove flowering plants in Britain.

**Ixtaccihuatl** (Aztec 'white woman'), extinct volcano SE. of Mexico City. Altitude 17,342 ft. It is joined by a ridge to Popocatepetl (q.v.).

**Iyar**, or **Yiar**, eighth month of the Jewish year (April-May).

**Izabal**: 1. Dept. of E. Guatemala, Central America, on the Caribbean coast. It is low and unhealthy, with extensive forests. Bananas are grown and lumbering carried on. The cap. is Puerto Barrios. Area 3489 sq. m.; pop. 56,000.

2. The former cap. of the above prov., situated on the S. shore of Lake I. Pop. 100.

**Izamal**, agric. tn of Yucatán, Mexico, 50 m. E. of Mérida, with which it is connected by rail. It has many anct ruins, which are visited by Indian pilgrims. Pop. 6000.

**Izard**, see CHAMOIS.

**Izdubar**, name given to the hero in a Babylonian epic, who is now known as Gilgamesh (q.v.).

**Izegem**, tn in the prov. of W. Flanders, Belgium, 20 m. S. of Bruges. It is engaged in agriculture and manuf. of linen, footwear, woollen goods, lace, chicory, bristles, and chocolate. There is an active wholesale trade in flax. Pop. 16,800.

**Izhevsk**, city in Russia, cap., economic and cultural centre of the Udmurt Autonomous Rep. (q.v.). It is an important centre for engineering (motor-cycles, small arms) and ferrous metallurgy. It was founded in 1760 as an iron foundry, destroyed by Pugachév (q.v.) in 1774, and has been a tn since 1918. I. workers overthrew the Communists in the tn in Aug. 1918 and formed the 'Izhevsk division', which fought on the side of the Whites. Pop. (1956) 252,000 (1920, 45,000; 1939, 176,000), mostly Russians.

**Izmail** (Rumanian **Ismail**), tn in Bessarabia, of Odessa Oblast, Ukraine. It is a port on the Danube, and seat of the Soviet Danube Shipping Administration. Pop. (1956) 43,000 (1892, 31,000). Known since 16th cent. as Turkish fortress. Stormed by Suvorov, 1790. From 1944 to 1955 cap. of I. Oblast, now abolished.

**Izmir** (Smyrna), cap. of an il of its own name, Asiatic Turkey, occupies the site of a former city on the slopes of a hill at the head of the Bay of I. It is one of the most important and flourishing seaports of the Levant, and the second port of Turkey, carrying on a large trade in silk, cotton, carpets, wool, opium, madder, copper, olive oil, drugs, gums, figs, sponges, valonia, and raisins. The harbour is large, and ships of heavy tonnage can anchor close to the quays. Three-fifths of I. was destroyed by fire in 1922; the rebuilt tn is modern and spacious, and is an important railway and commercial centre, with machine shops, foundries, tanneries, perfumeries, cotton-spinning, carpet-making, and many minor industries. I. is served by an electric tramway, and has railway connection with Kassaba and Aydin. I. was founded by Greeks probably about 1000 bc, and 300 years later it formed part of the Ionian League. The first city was situated about 3 m. N. of the modern city, and was destroyed by Alyattes, the Lydian king, in 630 bc. The second city was built by Antigonos and many magnificent buildings were erected by Lysimachus. Earthquakes, fire, and plagues have ravaged the city at various times; it was besieged and practically ruined by Timur in 1402, and 22 years later it fell into the hands of the Turks, who have retained possession of it. By the treaty of Sévres, 1920, I. and the ter. surrounding it were placed under the administration of Greece for 5 years, Turkey retaining the sovereignty. This gave rise to much dissatisfaction. Greece had already, 1919, occupied the city, and fighting occurred between the Greeks and the Turks, who, under Mustafa Kemal, took I. in 1922. By the treaty of Lausanne (q.v.) I. was returned to Turkey. The Armenian and Gk pop. was deported. Pop. (tn) 286,310; (il) 898,400.

Izmit, tn in Turkish il of Kocaeli at the head of the gulf of the same name. It was the antc Nicomedia (q.v.) and was the seat of the kings of Bithynia. It is the centre of a rich tobacco dist. and a naval base. Pop. 56,702.

Izu-schichi-to (the 7 is. of Izu) lie S. of Tokyo Bay, Japan. They are volcanic is.; 3 craters are active, and Izu-no-Oshima has a well-known smoking volcano (Mihara, 2500 ft). The is. were used as convict settlements.

'Izvestiya' (Russian 'news'), Russian daily newspaper pub. by the Presidium of the Supreme Soviet (*see* SOVIET) of the U.S.S.R. It was founded after the Feb. Revolution (q.v.), 1917, as the organ of the Petrograd Soviet. From Aug. 1917 it was pub. jointly by the Central Executive Committee of Soviets and the Petrograd Soviet. After the seizure of power by the Bolsheviks (*see* OCTOBER REVOLUTION) I. became editorially a replica of *Pravda* (q.v.). It was transferred to Moscow, 1918.

**J**, tenth letter of the Eng. alphabet, is one of the few permanent additions of the Middle Ages to the Semitic-Gk-Lat. alphabet. In exact terms it was not an addition, but a differentiation from an existing letter. *I* in Latin, besides being a vowel, had the consonant value of *y*, as in *index* and *major*. The symbols *i* and *J*, a lengthened form of *i* with a curve to the left, were used in the early Middle Ages indifferently for both the consonant and the vowel sound, the sign *J* being used in hands current at this time. At a later stage, from the 14th cent. onwards, the symbol *J* was used for distinctive purposes, particularly when *i* had to be written initially or in conjunction with another *i*. The sound *j* (*dzh*) came into English through French, where it had changed in sound from *y* to *zh*, cf. Fr. *juge* which became Eng. 'judge,' but the Lat. value of *j* as *y* may still be found in words of Hebrew or other origin, as *hallelujah*, *funker*, and so forth. In French the sound *zh* was also represented by *g*. Consequently, such words, in passing into English, by analogy with words like 'judge,' have an alternative spelling of *g* and *j*; for example, M.E. *geste*, *Gives*; Mod. E. 'jest,' 'Jews.' This accounts for variations in the spelling of words like 'gaol'—'jail'; 'gibe'—'jibe'; 'Geoffrey'—'Jeffrey'; 'serjeant'—'sergoant.' See ALPHABET.

**Jabal**, see JUBAL.

**Jabalpur**, or **Jubbulpore**, tn of Madhya Pradesh state, India, 150 m. NE. of Nagpur, near the Nerbudda R. Formerly the Great Indian Peninsular railway ended here, and the E. Indian railway system began; but between 1920 and 1930 the Great Indian Peninsular railway took over the railway between J. and Allahabad and the junction of these lines is now at the latter tn. J. is a fine tn with many good public buildings. It was largely from J. that Col. Sleeman directed his operations against the Thugs (q.v.). The jungles near by are famous for tiger shooting.

**Jabbok** (Nar-oz-Zerka), mt stream of Gilead, one of the prin. tribs. of the Jordan. It rises in Jebel Hauran and enters the Jordan 30 m. above the Dead Sea. It has many scriptural associations, and is first mentioned in connection with the meeting of Jacob and Esau. Its length is 110 m.

**Jabea**, see JAVEA.

**Jabesh-Gilead**, city of Gilead in Palestine E. of the Jordan, where Saul and his 3 sons were buried. They were Benjamites and so had tribal connections with the city (Judges xxi). According to Josephus J.-G. was the metropolis of the Gileadites. The site is now uncertain.

**Jabiru**, or **Mycteria**, genus of birds belonging to the Stork family (Ciconiidae). The Amer. J., which is found from the Argentine northward to Mexico, stands

sometimes as much as 5 ft high, has pure white plumage except for a black neck and head, and massive, slightly upturned bill. Other species occur in India, Australia, and Africa.

**Jablonec nad Nisou** (Ger. Gablonz), Czechoslovak tn in the region of Liberec (q.v.). It is well known for artificial gems and glassware, and also manufs. textiles and paper. Pop. 23,300.

**Jablonica**, or **Jablonitz**, Pass, in the Carpathian Mts, due W. of Czernowitz (Cernauti). During the First World War the Russian S. Army captured this important pass in Aug. 1916. The pass is now in the Ukrainian S.S.R.

**Jabne** (**Jamnia**), Israel, near Ashdod, 3 m. from the Mediterranean, was an anct Philistine stronghold. It was taken by the Israelites and played an important part in Jewish hist. It was conquered by the Maccabaeans and became the centre of Jewish scholarship. The sittings of the Sanhedrin were held here after the destruction of Jerusalem. Near the modern vil., Yabna, built on the anct site, are the remains of a fortress built by the Crusaders.

**Jaborandi**, native Brazilian name for a number of drugs prepared from several rutaceous plants, but particularly from the leaflets of *Pilocarpus pennatifolius*. The leaflets, when dried, are valuable for their sialogogue and diaphoretic actions. They contain 2 alkaloids, pilocarpine and jaborine, a volatile oil and a bitter substance. The effect of J. is to produce muscular relaxation, salivation, and perspiration. J. is now seldom used in medicine.

**Jaca**, Sp. tn in the prov. of Huesca, on the Aragón, with a fine Romanesque cathedral, probably the oldest in Spain, and a massive citadel. Pop. 9,500.

**Jacamar**, little-known species of birds, found in the dense tropical forests of S. America, E. of the Andes, and classed in the family of the Galbulidae. The golden, bronze, and steely lustre of their brilliant plumage, and the length and sharpness of their straight bills, are their chief characteristics. They are usually seen sitting motionless on trees from where they fly out to catch insects on the wing. The largest species is the *Jacamerops grandis*.

**Jacana**, bird of the family Jacanidae whose most striking feature is the length of their toes and claws, which enables them to travel on the flat leaves of water-lilies and other riv. plants. Their eggs are a rich olive-brown, usually streaked with dark lines. The common J. (*Parra jacana*) of Brazil is black with green plumage on the wings and a warm-brown neck. In habit it resembles a water hen. The *Hydrophasianus*, or pheasant-tailed J., frequents the marshes and lagoons of India and China and is the largest of all the genera. (See illustration, p. 256.)

**Jacaranda**, genus of Bignonaceae,

pub. *Great Frozen Land*, 1895, *A Thousand Days in the Arctic*, 1899, and *Lure of Unknown Lands*, 1935.

**Jackson, Helen Hunt** (1830-85), Amer. novelist, *b.* Amherst, Massachusetts, daughter of a prof. of classics, her maiden name being Helen Maria Fiske. In 1852 she married E. B. Hunt, and soon after his death in 1863 she turned to writing. In 1875 she married Wm S. J. Her works include 2 books championing the cause of the Red Indians, *A Century of Dishonour*, 1881, and *Ramona*, 1884, a novel. Another of her novels, *Mary Philbrick's Choice*, 1876, is based on the character of Emily Dickinson (q.v.), with whom she was at school. See study by R. Odell, 1939.

**Jackson, Holbrook** (1874-1948), literary historian, *b.* Liverpool. He started earning a livelihood in commerce at the age of 15. He had, however, determined on a writer's career and entered journalism in 1907, becoming joint-editor with A. R. Orage of the *New Age*. He also contributed as a freelance writer to most of the leading periodicals of the day. In 1910 he was associated with T. P. O'Connor in the latter's pubs., and became editor of *T.P.'s Magazine* (1911-12) and of *T.P.'s Weekly* (1911-14). From 1917 to 1923 he was both owner and editor of a literary jour., *To-day*. In addition to his interest in literature and book-collecting he was from 1917 until his death editorial director of the National Trade Press. He was also chairman of the Brit. Colour Council, 1933-4, having interested himself in fashions in colour and their introduction. His first pub. book was an essay on Edward Fitzgerald with a bibliography (1899). He was the first to write a full-length study of Bernard Shaw (1907) and also wrote a biography of Wm Morris (1908). His book *Eighteen Nineties*, 1913, is a standard work on the period. An authority on book production, he collaborated in *A Brief Survey of Printing*, 1923, and was author of *The Printing of Books*, 1938. His vast knowledge, technical, literary, and antiquarian, his love and care of books were the resources out of which he wrote his *Anatomy of Bibliomania* (2 vols.), 1930-1, a work modelled on Burton's *Anatomy of Melancholy*. His pub. vols. of essays include *Southward Ho!*, 1914, *Occasions*, 1922, *Essays of To-day and Yesterday*, 1923, and *Maxims of Books and Reading*, 1934. His *Dreamers of Dreams*, 1948, contains studies of a number of Eng. and Amer. writers of the 19th cent.

**Jackson, John** (1769-1845), pugilist, son of a London builder. Fought only 3 fights, defeating Fewterel, at Croydon, in 1788, in the presence of the Prince of Wales; defeated by Ingleston at Ingatstone, 1789, through breaking bones in a fall; defeated Mendoza at Hornchurch, 1795. Champion of England till retirement in 1803. Known as 'Gentleman Jackson.'

**Jackson, Sir Thomas Graham, Bart., R.A.** (1835-1924), architect, *b.* London. After a brilliant career at Oxford, entered

the office of Sir George Gilbert Scott (q.v.) in 1858, and began practice in London in 1862. His work consisted mainly of scholastic and eccles. buildings. For the former he favoured a Jacobean style. His prin. works were, in Oxford: the New Examination Schools; High School for Girls; restoration of St Mary's Church; extensions to Balliol, Brasenose, Corpus Christi, and Lincoln Colleges; at Cambridge: Sedgwick Museum; Law Library; Archaeological Museum; Physiological Laboratories; in London: alterations to Drapers' Hall and the Inner Temple; elsewhere: Giggleswick School chapel, sundry school buildings at Eton, Harrow, Rugby, and Winchester; important restorations at Winchester Cathedral, Bath Abbey, Great Malvern Priory Church, Christchurch Priory, Hospital of St Cross, Longleat, etc. He produced a remarkable series of books, including *Byzantine and Romanesque Architecture* (2 vols.), 1913, *Gothic Architecture* (2 vols.), 1915, *The Renaissance of Roman Architecture* (3 vols.), 1921-3, and many others. He was awarded the R.I.B.A. Royal Gold Medal in 1910, and was created a baronet in 1913.

**Jackson (Stonewall), or Jackson, Thomas Jonathan** (1824-63), Amer. Confederate general, *b.* Harrison co., Virginia. Of mixed Scottish and Irish descent, he was essentially the type of man who formed the backbone of the people of the middle states of America. Educ. at a small prov. school, he was severely handicapped when he entered W. Point Academy; but he overcame the limitations of his early schooling by pertinacity. He began his military career as an artillery lieutenant, and soon distinguished himself in the war against the Mexicans, serving in Magruder's Battery and being breveted captain for his gallantry at Contreras and at Churubusco (q.v.). But after this war he resigned his commission and took the post of prof. of military science and mathematics at the Virginia Military Institute. His participation in the civil war is easily explained by his sturdy advocacy of state rights, involving the support of Virginia's slave laws and her right to secede from the Union. Hence when the war broke out between the Federal and Confederate States J. was given a command in the S. Army, and at once proved himself to be an efficient and enterprising officer. At the first battle of Bull Run he commanded a brigade, and the dour defence made by him and his troops earned him the celebrated sobriquet of 'Stonewall' (1861). In the course of the famous Shenandoah Valley campaign (1862) he succeeded in defeating the 3 Federal detachments under Banks, Frémont, and McDowell, and later in inflicting a second defeat on Banks at Cedar Run, near Culpeper, Virginia. During the Maryland campaign he obliged 11,000 Federals to surrender in Harper's Ferry, and his corps at the tough fight of Antietam rendered yeoman service to the embarrassed Lee. Fredericksburg and Chancellorsville (1863) were his last 2 battles. At the latter he was thrice

wounded and shortly afterwards died. To his soldiers he was a very Napoleon, but with his rare gift for inspiring popularity was combined the intense religious fervour of Cromwell. *Stonewall Jackson, The Good Soldier*, by Allan Tate, 1930, is a critical study of his generalship.

**Jackson, William** (1730-1803), musical composer, studied music under the organist of Exeter Cathedral and later under Travers, then organist of the Chapel Royal, London. His part-songs and the opera *The Lord of the Manor* (performed at Drury Lane in 1780) enjoyed great popularity for some time, but he is now remembered only by a *Te Deum*, still much used in the Anglican Church.

**Jackson:** 1. City, co. seat of Jackson co., Michigan, U.S.A., in an agric. area on the Grand R., 68 m. W. of Detroit. It is a railway centre, and manufs. automobile and aeroplane parts, metal, wood, and food products, radios, and chemicals. A state prison is here. Pop. 51,100.

2. Co. seat of Madison co., Tennessee, 75 m. N.E. of Memphis, on the Forked Deer R. It is the seat of Lane College, Union Univ., and Lambuth College, and an industrial and shipping centre for a timber and agric. area. Pop. 30,207.

3. Cap. of Mississippi, on the Pearl R., 45 m. E. of Vicksburg. It contains fine public buildings, including the state house with its valuable library, and sev. charitable and technical institutions. Manufs. of machinery and agric. implements are carried on. Pop. 98,300.

**Jacksonville:** 1. Cap. of Duval co., Florida, U.S.A. It has a deepwater port on St Johns R. It is one of the chief S. commercial centres on the Atlantic coast, with extensive rail, air, and highway connections; it is also a port of entry and popular year-round tourist resort. J. has many wood- and metal-processing industries; it also manufs. cigars, concrete blocks, glassware, fertilisers, feeds, and meat products. Boat-building, fishing, and citrus-fruit canning and packing are carried on. It exports lumber, naval stores, fruit, and machinery. Pop. 204,517.

2. City, cap. of Morgan co., Illinois, U.S.A., in a grain-growing, dairying, and live-stock area, 31 m. W. of Springfield. J. manufs. clothing, shoes, steel products, and cigars. It is the seat of Illinois College, MacMurray College, and state schools for the deaf and the blind and a hospital for the insane. Pop. 20,400.

**Jacmel**, seaport of Haiti, situated on the S. coast, 24 m. S.W. of Port-au-Prince. The vessels here anchor about half a mile away from the shore. Exports coffee, cotton, and logwood. Pop. 8600.

**Jacob**, also called Israel, son of Isaac and Rebekah, one of the 3 great Heb. patriarchs (Gen. xxi-xlix). The story of J. is one of the most human and instructive in the O.T. J.'s faults are obvious. His trickery, cunning, and sharp dealing were probably admired by the nomadic people, but they have troubled Christians who wonder why God preferred him.

But J. had qualities of spiritual sensitivity, faith, and devotion, and a desire for spiritual things that made him a better man than Esau, who sold his birthright for a mess of pottage. His vision at Bethel of the ladder set up to heaven (a type of the Incarnation), his wrestling with an angel at Peniel, and his love for Rachel and her children, Joseph and Benjamin, give us an insight into his spiritual and moral qualities. Our Lord contrasts his guile with the simplicity of Nathanael, and refers to his vision, in John i. 47f. His 12 sons were the eponymous ancestors of the 12 tribes, collectively known as the Children of Israel (modern Israelis). J. d. in Egypt, whence he was carried to Hebron for burial. *See also* PATRIARCHS.

**Jacob, Sir Claud William** (1863-1948), soldier, son of Maj.-Gen. Wm J., educ. at Sherborne School and Royal Military College, Sandhurst. Entered the army in Worcestershire Regiment in 1882 and transferred to the Indian Army in 1884. Promoted colonel, 1911, major-general, 1916, lieutenant-general, 1917, general, 1920, and field-marshal, 1920. First experience of active service was with the Zibb Valley Expedition, 1890. NW. Frontier campaign, 1901-2. At the outbreak of the First World War he went to France with the Meerut Div. and was the only Indian army officer of the corps to rise to high command there. In 1915 he led the Dehra Dun Brigade at Neuve Chapelle and at Aubers Ridge. Commanded II Corps for the remainder of the war: during the Somme battles, 1916, when he took Thiepval (q.v.) by a well-planned assault; at the Amiens operations and the pursuit of the Germans to the Hindenburg Line, 1917, and at the third battle of Ypres; and in Flanders in the final allied advance to victory in 1918. In 1920 he returned to India on his appointment as chief of the general staff. In 1924 he was given the N. Command in India. From 1926 to 1930 he was military secretary at the India Office. In 1927 he was appointed colonel of the Worcestershire Regiment. From 1916 to 1933 he was colonel of the 1st/4th Hazara Pioneers, which body he had formed in 1904 for work on the NW. Frontier communications. His last official post was constable of the Tower of London, 1937-43.

**Jacob, Gordon** (1895- ), composer, b. London, where he studied at the Royal College of Music, whose teaching staff he joined in 1926. He is an eminent specialist in orchestration, and as a composer has been prolific in music always ideally suited to the chosen medium. It includes ballet and film music, 2 symphonies, 3 suites, variations, and other works for orchestra, concertos for various instruments, chamber music, etc.

**Jacob, Naomi Ellington** (1889- ), novelist, b. Ripon, Yorks. Educ. at Middlesbrough High School, she became a teacher at 15. During the First World War she worked in a munition factory, and after that went on the stage with considerable success. Her first novel, *Jacob Ussher*,

appeared in 1926. In 1930 she was ordered S. for her health and made her home at Sirmione on Lake Garda. Later novels include *The Loaded Stick*, 1935, *Barren Metal*, 1937, *Straus in Amber*, 1938, *The Cap of Youth*, 1941, *White Wool*, 1944, *Passage Perilous*, 1948, and *Morning Will Come*, 1953. She also wrote a life of Marie Lloyd, 1936, and a long series of autobiographical books, including *Me: a Chronicle About Other People*, 1933, *Me—Again*, 1937, *Me and the Mediterranean*, 1945, *Me—Looking Back*, 1950, and *Me—Yesterday and Today*, 1957.

**Jacob, Violet** (1863–1946), poetess and novelist, b. Montrose, her maiden name being Kennedy-Erskine. She married Major A. O. J. and they spent some years in India. Her novels include *The Sheep-Stealers*, 1902, *The Interloper*, 1904, *The History of Aylhan Waring*, 1908, and *Flemington*, 1911. Vols. of her poems, many of them in the Angus dialect, are *Songs of Angus*, 2 series, 1916, 1918, *Bonnie Joann*, 1922, and *Northern Lights*, 1927. Her *Scottish Poems* were collected in 1944. *The Lairds of Dun*, 1931, is a study in the landed hist. of her own dist. In 1936 she was made an honorary LL.D. of Edinburgh Univ.

**Jacobabad**, tn in W. Pakistan, close to the border between Sind and Baluchistan on the railway to Quetta. It has the distinction of regularly showing the highest temps. in the Indian subcontinent during the hot weather.

**Jacobean**, term applied to architecture and furniture of the reigns of the Stuarts (1603–88), though strictly only to those of the time of James I. J. furniture is generally of heavy oak, skillfully carved. Panelling is characteristic of the interior of the typical J. house.

**Jacobi, Friedrich Heinrich** (1743–1819), Ger. philosopher, b. Düsseldorf, studied at Frankfurt and Geneva. From 1805 to 1812 he was prof. of philosophy at Munich, where he died. His philosophical work was not original in nature, but consisted in keen criticism of the system promulgated by others. He was largely responsible for drawing attention to the philosophy of Spinoza by his letters to Mendelssohn, *Briefe über die Lehre Spinozas*, 1785, and compared Hume with Kant in his work *David Hume über den Glauben, oder Idealismus und Realismus*, 1787. He also expounded Schelling's philosophy in *Von den göttlichen Dingen und ihre Offenbarung*, 1811. Apart from these he wrote philosophical romances, including *Woldemar*, 1779. His collected works were pub. at Leipzig in 1812–25 in 6 vols. See G. Fricke, *Friedrich Heinrich Jacobi*, 1943.

**Jacobi, Karl Gustav Jacob** (1804–51), Ger. mathematician, b. Potsdam, prof. of mathematics at Königsberg till 1842. He is remembered specially for his researches on elliptic functions and differential equations, and he helped to formulate the theory of determinants. His most important work is *Fundamenta Nova Theoriae Functionum Ellipticarum*, 1829. His *Gesammelte Werke* were pub. 1881–91.

See studies by L. Koenigsberger, 1904, and A. Kowalewski, 1917.

**Jacobins**, Fr. political society formed during the Fr. Revolution, of those who originally aimed at constitutional reform of a reasonable kind. They were called J. because they used to meet in a building in the rue St Honoré, Paris, which belonged to the Dominican order, called in France the Jacobin. After 1791 the members grew more extremist and organised the reign of terror; but their power ended in 1794 with the execution of Robespierre. The word 'jacobin' was used in Britain and in Europe generally for the holders of extreme political opinions, and it was to check such views that the *Anti-Jacobin* was launched.

**Jacobites**, the Syrian, monophysite schismatics (see MELCHITES) who, after being suppressed and deprived of their clergy by Justinian, were revived and recovered the episcopate by favour of the Empress Theodora. James (Jacob) Baradaeus was consecrated bishop for them in 541, and their orders all derive from him. They are in communion with the Copts and Ethiopians, and provided a bishop for the Nestorians of Malabar in the 17th cent., since when the latter have been monophysite, and sometimes called Jacobite too, though they are quite independent. See NESTORIUS, *Nestorian Church*.

**Jacobites**, name given to the followers of the Stuart house after the revolution of 1688. The name is derived from the Lat. name Jacobus (James). James II had numerous followers in all the countries of the Brit. Isles, but the later Stuarts, the Old and Young Pretenders, received their main support from the Scots. In 1689 Graham of Claverhouse roused the Highlands for James, fought the battle of Killiecrankie, but died in the moment of victory. In Ireland the Boyne had been fought in 1690 and the Irish defeated (see JAMES II), and Ireland so thoroughly subdued that during the 2 subsequent rebellions she played no active part. The reign of Anne was one of constant intrigue between the leading statesmen and the Old Pretender, and the Jacobite plot at the end of the reign probably failed only because of the too sudden death of the queen. In 1715, the Hanoverians having just been estab. on the throne, an ill-organised Jacobite rebellion took place both in Scotland and in the N. of England. The indecisive battle of Sheriffmuir, the surrender at Preston, and the somewhat depressing presence of the Old Pretender, all contributed to the overthrow of the rebellion. The next serious Jacobite threat came in 1745 when the Young Pretender, 'Bonnie Prince Charlie', landed at Moldart with 7 followers. He roused the Highlands at once, swept away opposition at Prestonpans, and proclaimed his father James III. He invaded England and reached Derby, but there he commenced to fall back. His march had been conducted in a great arc over some 500 m. from Moldart to the outskirts of Derby, where the decision to turn back

was taken at a point only 130 m. short of London. Charles was finally overwhelmed at Culloden. After numerous adventures he managed to escape, and d. on the Continent, a weak, broken, dissolute drunkard. His younger brother Henry (q.v.) became a cardinal of the Rom. Church, and the direct Stuart line ended. After this date Jacobitism became little more than a romantic sentiment. Almost every great statesman of the time had intrigued with the Stuarts, from Sunderland and Marlborough down to Newcastle himself, who in 1746 was uncertain for a time whether or not to go over to Charles. See Sir C. Petrie, *The Jacobite Movement: First Phase, 1688-1716*, 1949, and *The Jacobite Movement: the Last Phase*, 1950.



JACOB'S LADDER

Jacobs, William Wymark (1863-1943), author, b. Wapping, E. London. Son of a wharf manager, he was early familiar with the types of longshoremen and sailors whose idiosyncrasies he exploited with much success in his humorous stories. Educ. at private schools, he worked in the Savings Bank dept. of the Civil Service, 1883-99. His earliest literary work was pub. in the *Idler* and *Today*, both ed. by Jerome K. Jerome, who soon recognised the merit of J.'s humour. He became a regular contributor to the *Strand Magazine*. His first vol. of short stories, *Many Cargoes*, was pub. in 1896. This success was followed by *The Skipper's Wooing*, 1897; and after *Sea Urchins*, 1898, he abandoned the Civil Service and thereafter lived entirely by his pen. J. pub. about 20 vols., chiefly collections of short stories, under such titles as *Light Freights*, 1901, *At Sunnich Port*, 1902, *The Lady of the Barge*, 1902, *Old Craft*, 1903, *Dialstone Lane*, 1904, *Captains All*, 1905, *Short Cruises*, 1907, *Salthaven*, 1908, *Sailors' Knots*, 1909, *Ship's Company*, 1911, *Night Watches*, 1914, *The Castaways*, 1916, *Deep Waters*, 1919, and *Sea Whispers*, 1926. He also wrote some one-act plays, such as *Establishing Relations* and *Dixon's Return*.

His gruesome story *The Monkey's Paw* marked a departure from his humorous vein; this story and some others were dramatised in collaboration with Louis N. Parker and successfully produced. He also collaborated in *Beauty and the Barge*, a 3-act comedy, 1906.

Jacob's Ladder, or *Polemonium caeruleum*, species of Polemoniaceae found in temperate climates and of rare occurrence in Britain. It is a perennial herb which attains a height of 1 to 2 ft and bears blue or white flowers. The popular name is given to the plant because of the ladder-like arrangement of the leaves.

Jacobsen, Jens Peter (1847-85), Dan. novelist, b. Thisted, Jutland. He began as a student of botany and later trans. Darwin into Danish. Under the influence of Brandes he turned towards naturalism and a detailed realistic description of life. He was, however, by temperament a dreamer, and this very contrast, accentuated by his suffering from consumption, gave his novels a highly individualistic style, full of sensitive undertones. His 2 novels, *Maria Grubbe*, 1876, and *Niels Lyhne*, 1880, have gained European fame. He also wrote short stories (*Mogens*, 1882) and some verse. J. may be considered as the chief naturalistic writer in Denmark. See G. Christensen, *J. P. Jacobsen* (2nd ed.), 1924; A. Linck, *J. P. Jacobsen* (2nd ed.), 1926; A. Gustafson, *Six Scandinavian Novelists*, 1940.

Jacobus, gold coin struck in the reign of James I of England (1603-25), and thus named after him, J. being the Lat. equivalent for 'James.' It was of the same value as 25 shillings sterling.

Jacopone da Todi (c. 1230-1306), It. religious poet, b. Todi in the Duchy of Spoleto. He was originally an advocate, but about 1268 turned a Franciscan, and wrote poems which display an extreme bent towards asceticism. He is the author of some 90 'laudi,' religious ballads and hymns, which play an important part in the development of It. drama. In 1298 Todi was imprisoned for inveighing against and satirising Pope Boniface VIII, and was not released till the death of Boniface in 1303. The authorship of the *Stabat Mater* has been ascribed to Todi, as also many beautiful Lat. hymns. An ed. of his works appeared at Florence in 1490. See lives by A. D'Ancona, 1884, and Evelyn Underhill, 1919.

Jacotot, Jean Joseph (1770-1840), Fr. educationist and inventor of the 'universal method' of education, b. Dijon. He became successively soldier, military secretary, and holder of various professorial chairs. It was while at Louvain that he applied his method of 'universal instruction,' closely resembling that of Hamilton. The principle of his system is that the mental capacities of all men are equal, and he expounded his views in *Enseignement Universel*, 1823. See life by Guillard, 1860, and J. Tourrier's *Intellectual Emancipation: A Treatise on Jacotot's Method of Universal Instruction*, 1852.

Jacquard, Joseph Marie (1752-1834), Fr. mechanician, b. Oullions, near Lyons.

He invented the silk-weaving loom called after him (1801-8), a mechanical contrivance capable of being adjusted to any kind of loom, and doing away with the guidance by hand. The silk-weavers offered violent opposition to his machine, and he narrowly escaped with his life on one occasion. His invention, however, revolutionised the art of weaving, and at his death his machine was in almost universal use. Napoleon rewarded him with a small pension.

**Jacquerie**, name given to a revolt of Fr. peasants in 1358, the designation arising from the contemptuous term 'Jacques Bonhomme,' by which the nobles described the peasants. Long standing oppression on the part of the nobility was the cause of the rebellion, which broke out around Beauvais, and received support from the Paris citizens. In June 1358, however, the peasants were defeated and the rising suppressed with great cruelty.

**Jactitation** (Lat. *jactitator*, boaster). The suit *causa jactitationis matrimonii* may be brought against one who falsely gives out that he or she is married to the petitioner. The object of the remedy is to enjoin perpetual silence upon that matter against the jactitator, and apparently this suit is the only remedy available for such an injury. It is a remedy inherited by the Probate, Divorce, and Admiralty div. of the High Court from the old eccles. jurisdiction of the spiritual courts, and the statute conferring that jurisdiction in the Divorce Court is the Matrimonial Causes Act, 1857. Suits of J. are extremely rare, probably because the remedy is not adapted, or because at all events there are no precedents to show that it is adapted, to establishing the validity of the petitioner's marriage to a third person. There is, however, a statutory remedy under the Legitimacy Declaration Act, 1858, for that purpose which is also the appropriate remedy to establish the legitimacy of offspring.

**Jadar**, or **Yadar**, riv. of Yugoslavia, a trib. of the Drina, SW. of Belgrade. During the First World War, the Serbs by their success at the battles of J. (20-2 Aug. 1914) and Sabac (17 Aug.) prevented the junction of the Austrian armies invading Serbia from N. and W., and compelled the Austrians to abandon the invasion. See AUSTRIA and WORLD WAR, FIRST.

**Jade**, ornamental stone, generally of green colour, belonging to 2 distinct species, viz. jadeite and nephrite, often wrongly confounded one with the other. (Hardness 6½-7; sp. gr.: nephrite 3, jadeite 3.3) Jadeite belongs to the pyroxene group, while nephrite is a variety of amphibole. J. is highly prized in the E., especially by the Chinese, and is found in China, Burma, and many parts of S. Asia. It was used by the prehistoric peoples of Mexico, Alaska, New Zealand, and other countries for utensils and carvings, and on many prehistoric sites in Europe, as in the Swiss lake dwellings. J. objects have been frequently discovered. Consult Dr G. F. Kunz (ed.), *Investigations and*

*Studies in Jade*, 1906, for a full and exhaustive description of the stone; also S. C. Nott, *Chinese Jade*, 1936, and S. H. Hansford, *Chinese Jade Carving*, 1950.

**Jadeite**, mineral species related to the pyroxenes and differing markedly from true jade or nephrite. It is a monoclinic aluminium sodium silicate. White or 'camphor' jade is the purest form, though usually specimens are coloured by the presence of metallic oxides, e.g. chromium causes brilliant green patches. Though the hardness of J. differs but little from that of jade, its sp. gr. is higher (3.20 to 3.41). J. is translucent to opaque. It is much more readily fusible than nephrite. Although implements of J. have been found on many prehistoric sites in Europe, it is only recently that the raw material has been found *in situ* in the Alps. Large stores of it have been mined since remote times in S. Asia, etc.

**Jael**, Jewish wife of Heber, the Kenite (Judges iv), who, after the battle on the Kishon, slew the enemy general Sisera when he had taken refuge in her tent.

**Jaén**: 1. Sp. prov., in Andalucía (q.v.). It is inland, is watered by the Guadalquivir (q.v.), the Segura, and other rivers, and is very fertile. There are some mts. Cereals, fruits, wine, and oil are produced, and lead is mined. Area 5205 sq. m.; pop. 753,300.

2. Sp. tn, cap. of the prov. of J., on the Guadalquivir. It was taken from the Moors in 1246, and became the base for the Sp. army that conquered Granada (q.v.) in 1492. Parts of the old walls and a Moorish fort remain; there is a splendid Renaissance cathedral and there are sev. other noteworthy churches. J. was at one time famous for silk, but this industry has died out. Textiles, chemicals, oil, and leather are produced. Pop. 63,500.

**Ja'far Pasha-el-Askeri** (1880-1936), Iraqi statesman, b. Bagdad. Educ. in Constantinople and Germany. Entered Turkish Army, 1902. Promoted captain in Balkan War, 1912. In the First World War he was chosen to organise the troops of the Sheikh-el-Senussi; and, attempting to invade Egypt, was captured by the Dorset Yeomanry at Agagia, 26 Feb. 1916. In an attempt to escape from Cairo citadel he injured himself; and, during incapacitation, he was converted (by his reading) to the Brit. side. Joined Hejaz Army, 1917, and was given the C.M.G. on the recommendation of Gen. Allenby, Governor of Aleppo, 1919. Minister of defence in Iraq, 1920-2, and represented Iraq at Lausanne conference. Prime Minister, Iraq, 1923; diplomatic agent in London, 1925-6. Prime Minister and minister of foreign affairs, 1926-8. Minister in England, 1928-30, and also 1932-4, and called to the Eng. Bar. Iraqi Senator, 1934. Minister of defence, 1935. Assassinated after a *coup d'état* in Oct. 1936.

**Jaffa** (anc. Japho; Gk. Joppa), tn in Israel, now a suburb of Tel-Aviv (q.v.). In 1947 it had an estimated pop. of 108,000, of which 80,000 were Arabs. The present Arab pop. is about 5000. Its name is to be found on the tower of



Thotmes II at Karnak among the cities mentioned as being overwhelmed by Pharaoh. Later it became a Phoenician city, and then, for a thousand years, Philistine, during which time the logs for Solomon's temple, after being floated down from the ports of Lebanon by Hiram, were landed at J. Under the Maccabees J. became mainly Jewish. From 64 BC J. was within the Rom. prov. of Syria.

Subsequently, it was in the house of Simon the Tanner at J. that St Peter saw the vision recorded in Acts ix. 43. In the Crusades, Baldwin I signed the treaty of J. with the Genoese, whence sprang much strife. The city then became a co.; but in 1187 it was captured and destroyed by the brother of Saladin, and then retaken by Richard Cœur de Lion. In 1267 it was again sacked, this time by Bilbars, and in 1799 it was stormed by Napoleon. The strike over Jewish immigration fomented by the Arab political leaders, which developed into grave disorders throughout Palestine in 1936, began in J., which remained a centre of Arab nationalism until its capture by the Jews in May 1948. Most of the Arabs fled. In Oct. 1949 the administration of J. was unified with that of Tel-Aviv. J. is the second largest port in Israel. Citrus fruit is its main export.

**Jaffna**, or **Jaffnapatam**, seaport tn on J. Is., off the N. coast of Ceylon, 116 m. from Trincomalee. It has a ruined Dutch fort, an old Dutch church, and temples. It is the prin. centre of the Tamil-speaking people of Ceylon, often called J. Tamils.

**Jagannath**, see JUGHERNATH.

**Jagdalak**, see JUGDALAK.

**Jagellons**, or **Jagellones**, royal dynasty of Poland, descended from Gedimin of Lithuania (d. 1342), founded by Jagello (c. 1345-1434), afterwards Wladislaw II. This line ruled in Poland from 1386 to 1572, when, with Sigismund Augustus, the male line became extinct. Through his sister's descendants the J. continued on the throne till 1668. Rulers over Lithuania, Hungary, and Bohemia were also chosen from the J.

**Jagersfontein**, vil. of Fauresmith div., Orange Free State, S. Africa, 67 m. WSW. of Bloemfontein. The celebrated Klipfontein diamond mines near by rank next to those of Kimberley. J. is on the railway from Cape Town to Pretoria. Discovery of gold in the vicinity is likely to increase its importance. White pop. 1200.

**Jaggard**, William, see BOOKSELLING.

**Jagger**, Charles Sargeant (1885-1935), sculptor, b. near Sheffield. He was trained at Sheffield School of Art and at the Royal College of Art, S. Kensington. Here he won a travelling scholarship and visited Rome and Venice. In 1914 he won the Rome Scholarship for Sculpture of the Brit. School at Rome. His best known work is the Royal Artillery Memorial, Hyde Park Corner, London, something of a compromise with architects and organising committee but characteristically vigorous in its bronze gunners. The figure on the G.W.R. War Memorial and

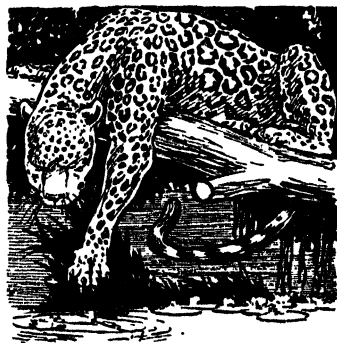
that of Sir Ernest Shackleton on the building of the Royal Geographical Society are typical of his style. Elected A.R.A., 1926, and a member of the Royal Mint Advisory Committee on Coins, medals, etc., in 1932. His group in stone for Imperial Chemicals House, Millbank, won him, in 1935, the gold medal of the Royal Society of Brit. Sculptors. He wrote an account of his craft, *Modelling and Sculpture in the Making*, 1933.

**Jagger**, David (1891-1958), portrait painter, b. near Sheffield, brother of Charles J. He was a regular exhibitor at the Royal Academy and London Portrait Society. In 1957 the Welsh Guards commissioned him to paint the Duke of Edinburgh.

**Jaggery** (Hindustani *shakkar*), coarse brown sugar of the E. Indies, chemically the same as cane-sugar. It is made by inspissation from the sap of various palms, such as the J., coco-nut, Palmyra, and date-palms (*Phoenix dactylifera*). The Indian *Phoenix sylvestris* and *Caryota urens* also yield J., as do also the *Nipa fruticans*, *Arenga saccharifera*, and others. The sap or juice by fermentation becomes palm-wine, from which arrack is distilled.

**Jago**, Richard (1715-81), clergyman and poet, b. Beaunesert, Warwickshire. Educ. at Oxford, he held various livings in Warwickshire from 1746, dying at Snitterfield. His *Poems, Moral and Descriptive* were pub. by Hylton in 1784. See F. L. Colville, *Worthies of Warwickshire*, 1869; C. H. Poole, *Warwickshire Poets*, 1914.

**Jaguar** (*Panthera onca*), large Amer. spotted cat of the order Felidae, found in countries ranging from Texas through Central and S. America, to Patagonia. In



form the J. somewhat resembles the leopard, but is more thick set. Its skull resembles that of a lion or tiger. Its movements are rapid and it is very agile. It has a tawny yellow hide, spotted with black, and varies in length from 4 ft to 6 ft 9 in. It is generally found singly, and preys upon deer, capybaras, peccaries,

cattle, and even fresh-water turtles and fishes. It emits terrific roars and cries, particularly during the mating season. From 2 to 4 cubs are produced at birth towards the close of the year. In disposition the J. is ferocious and blood-thirsty, and after having tasted human flesh it occasionally becomes a confirmed 'man-eater.' It submits somewhat grudgingly to captivity, but may become subdued and even docile. It is usually hunted with dogs and poisoned arrows, though sometimes with the lasso, and the skins are imported into Europe in large numbers. The black-furred J. is sometimes regarded as a different species, but the characteristic markings can be detected in certain lights. Amer. naturalists divide the species into a number of forms regarded as distinct, but preferably ranked as subspecies.

**Jahangir**, Mogul emperor of India, succeeded his father, Akbar, in 1605 and reigned till his death in 1627. When he ascended the throne his son Khurru tried to usurp power and to seize Lahore, whither J. had transferred the seat of gov. Insurrections marked his reign throughout. J. was strongly influenced by his favourite wife, Nur Mahal, and the currency was struck in her name, and court intrigues occupied her life. J. favoured the Jesuit missionaries, whose influence was evident in many 17th-cent. buildings in Lahore. The Saman Burj and other parts of the old royal palace and various tombs date from J.'s reign. It was in his time that the Eng. first estab. themselves at Surat and appointed their first embassy to an Indian court. J. was succeeded by his son, Shah-Jehan (q.v.), founder of Delhi, which city was known to Muslims as Jahánabád. In Jehan's reign the Mogul empire reached the peak of its magnificence. His chief city of residence was Agra and his name will ever be associated with the glory of Indian architecture, the Taj Mahal, named after his wife, Mumtaz Mahal, beside whom he lies buried.

**Jahn, Friedrich Ludwig** (1778-1852), father of gymnastics (q.v.), or *Turnvater*, b. Lanz, Prussia. First served in the Prussian Army, and in 1811 started the first gymnasium in Berlin. His system did much to revive patriotism and attracted the Prussian youth, but in 1818 his gymnasia were closed on account of the political gatherings held there, which were of too liberal a nature to find favour in the eyes of the Prussian Gov. J. was arrested and imprisoned for 6 years (1819-1825) as a demagogue. He wrote *Deutsche Volkstum*, 1810, and *Die deutsche Turnkunst*, 1816. See E. Nevenndorff, *Turnvater Jahn, sein Leben und Werk*, 1928, and F. Eckhard, *Friedrich Ludwig Jahn: Eine Würdigung seines Lebens und Werkes* (2nd ed.), 1931.

**Jahn, Otto** (1813-89), Ger. archaeologist and classical editor, b. Kiel. In 1839 he was appointed to the chair of archaeology at Leipzig, where he founded the Archaeological Society. His publs. include works on Gk art, representations of ant life on vases, a masterly life of Mozart, and essays

on music. His letters were ed. by A. Michaelis, 1913.

**Jahrom**, or Jahrum, tn and dist. of Fars prov., Persia, 90 m. SE. of Shiraz. The dist. is famous for its dates and citrus fruits. Pop. of tn 29,100.

**Jahvist** (J), or Yahwist, worshipper of Jahveh or Yahweh. The term is now generally applied to those non-Deuteronomic portions of the Pentateuch which are distinguished by the use of Jahveh, not Elohim, as the name of God.

**Jail**, see PRISONS.

**Jail Delivery**, one of the commissions under which the judges of assize derive their authority (see ASSIZE). The Commission of J. D. is a patent in the nature of a letter from the queen, directed to the judges of assize of each circuit (see CIRCUIT), queen's counsel attending the circuit, clerk of assize, and associate, authorising them to 'deliver his jail at a particular town of the prisoners in it,' i.e. to try every prisoner in the jail committed for trial on any charge whatever. As, under this commission, judges may proceed upon any indictment of felony found before other justices and not determined, their authority differs from that of justices of oyer and terminer (q.v.), who can only proceed on indictments found at the same assizes. The court of queen's bench (q.v.), on account of its status as the highest court of criminal jurisdiction, automatically determines and absorbs by its coming into any co. all former commissions of J. D. and oyer and terminer. This, however, does not apply to the Central Criminal Court. See Harris, *Principles of Criminal Law*, and Russell on *Crimes*.

**Jail Fever** is now recognised as a severe form of typhus fever (q.v.). The disease raged in Eng. prisons from the 16th cent., breaking out at the Black Assize of Oxford in 1577. It was caught by many attending the assizes at the Old Bailey as late as 1750, but owing to the improvements in hygiene and sanitation is now of rare occurrence. See J. Howard, *Account of the State of Prisons*, 1777.

**Jainism**, doctrine of the Jains, a wealthy and influential Hindu sect, mostly found in the W. dists. of Upper India. It is allied in many respects to Buddhism, but appears to have developed from Brahminism at an earlier date than Buddhism did. Its origin is attributed to Vardhamana Mahavira, who lived about the end of the 6th cent. BC. The sect flourished greatly between the 3rd and 8th cents., but subsequently dwindled owing to persecution by the Brahmins. From the 1951 census the number of Jains in India is reckoned at 1,618,406. The Jains, like the Buddhists, deny the divine origin of the Veda (q.v.). They believe in the separate existence of the soul after death, even of animals, and this belief leads them to take great care of animal life. They brush seats before sitting, and drink only water that has been strained, never leaving it uncovered for fear that some insect may be drowned in it. They have to practise liberality, piety, gentleness, and penance, and must make a daily visit to the Jain temple.

Their principle is to suppress the body by abstinence, continence, and silence. During certain seasons they abstain from honey, grapes, fruits, salt, tobacco, and other articles. The members of the religious order of the Jains are called Yatis, those of the secular order Sravakas, the rules for the former being stricter than those for the latter. The Jains are not divided into castes, except in S. India, but they have certain family groups between which marriage is not allowed. Formerly they advocated leaving the body naked, but this practice is now confined to meal times. Their creed is very detailed, and in many respects fantastic. They reverence deified saints, called Jinās, who give the sect its name. These saints are 72 in number, 24 each of the past, present, and future ages respectively, the earlier of them being of gigantic proportions and living enormous lengths of time, while the most recent resemble ordinary humans in these respects. The Jains are responsible for many beautiful temples, notably Mt Abu and Mt Parasnath. Their temples are usually constructed with pseudo-arch and dome, built in horizontal courses and with pointed section.

Consult E. Thomas, *Jainism, or the Early Faith of Asoka*, 1877; J. Fergusson, *Cave Temples of India*, 1880; T. W. Rhys Davids, *Hibbert Lectures*, 1881; J. Burgess, *Buddhist and Jainist Caves* (2 vols.), 1881-3; Jacobi, *Jaina Sutras* (vols. I and II), 1895; J. G. Bühler, *On the Indian Sect of the Jains*, 1904; H. von Glasenapp, *Der Jainismus*, 1925; C. J. Shah, *Jainism in North India*, 800 BC-AD 526, 1932; W. Schubring, *Die Lehre der Jains*, 1935; J. Jaini, *Outlines of Jainism*, 1940.

Jaipur, former Indian state, now part of Rajasthan state. The Maharaja, one of the wealthiest of the Indian princes, is Rajpramukh of Rajasthan. The anct cap. was at Amber (q.v.). J. itself is a fine, walled city where the colouring of many of the buildings adds to the brightness of the clothing of the crowds. It is the H.Q. of Rajasthan, and is noted for its excellent enamel work. It is laid out in 6 rectangular blocks, intersected by wide, straight streets, unlike many Indian cities. See INDIAN PRINCELY STATES.

Jaisalmer, former Indian state, now part of Rajasthan state, NW. of Jodhpur and SW. of Bikaner. Situated in the great Indian desert, J. is very remote, but noted for some fine Jain temples and a handsome fort. See INDIAN PRINCELY STATES.

Jajce, tn in Bosnia-Hercegovina, Yugoslavia, at the confluence of the Pliva and the Vrbas. In the 15th cent. it was the cap. of the kingdom of Bosnia (see BOSNIA-HERCEGOVINA), and here the last king was put to death by the Turks in 1463. In the Second World War J. was a partisan centre. It has many anct buildings. There are leather and textile manufs., and there are hydro-electric installations near by. Pop. 7900.

Jaipur, tn of Orissa state, India, 43 m. from Cuttack. The anct cap. of Orissa,

it contains fine Hindu temples, also a Hindu monument much visited by pilgrims.

Jakarta, formerly Batavia, city of NW. Java on J. Bay, Indonesia, of which it is the cap. It is divided into the old tn and a modern residential garden suburb. The old tn is intersected by canals crossed by drawbridges. There are rail links with Surabaya, etc., and an airport at Kemayoran, 6 m. away. Industries include railroad shops, iron foundries, tanneries, saw-mills, textile mills, printing, and chemical plants. The Univ. of Indonesia is at J., which also possesses museums, etc. The city was founded by the Dutch in 1619, and was the H.Q. of the Dutch E. India Co. (q.v.). It was in Brit. occupation from 1811 to 1816. See also JAVA.

Jakutsk, see YAKUTSK.

Jalal ud-Din, or Rumi (1207-73), famous Sufi poet of Persia, b. Balkh in Khorasan and d. in Qonya. He founded the Mevlevi Dervish order in memory of Shams ud-Din Tabrizi from whom he received esoteric teaching. This order is characterised by the mystic dance symbolical of the movement of the spheres and of the soul. His most famous work is his great poem the *Mahnavi-i Ma'navi*, which is commonly called in Persia 'the Qur'an in the Pahlavi (i.e. Persian) language.' It has been trans. in full by R. A. Nicholson and in part by E. H. Palmer in the *Song of the Reed*. The *Divan-i Shams-i Tabriz* comprises a collection of J.'s lyrical odes (trans. R. A. Nicholson).

Jalalabad, or Jelalabad, tn of Afghanistan, on the road between Kabul and Peshawar, in a fertile plain near Kabul R., close to Khyber Pass. It is noted for the brave resistance made by the British under Sale (1841-2) to the Afghans. Its defences were destroyed on the Brit. evacuation of Afghanistan, 1842. Pop. about 4000.

Jaipur, ruined tn of W. Pakistan, 68 m. SSE. of Rawalpindi. It is identified by Cunningham with Alexander's Bucephala, built in memory of his famous horse.

Jalandhar, see JULLUNDER.

Jalap, well-known purgative medicine, consisting of the dried root of *Ipomoea purga*, a plant belonging to the Convolvulus family. It is a native of the E. slopes of the Mexican sierras, growing at an altitude of about 6000 ft, and is named from the tn of Jalapa. J.-root contains starch, sugar, lignin, etc., but the active principle is a resin present to the extent of 10 per cent, which may be extracted with alcohol. J., which is administered either as a powder or in alcoholic solution, acts as a hydragogue cathartic, and is used in constipation, renal disease, dropsy, and cerebral affections. The ordinary dose of the powder is from 10 to 30 grains.

Jalapa: 1. Dept. of E. Guatemala, in volcanic region. Cap. J. The chief products are coffee, the sugar-cane, rice, and maize, and chromite from the mines N. of Pop. 75,000.

2. Cap. of Veracruz and 150 m. E. of Mexico City. It is 4465 ft above sea

level and is situated in a picturesque and fertile dist. with a healthy and temperate climate. It is known as the city of flowers. The medicinal plant 'jalap' here grows wild. The church of the Beaterio was originally a Franciscan convent; its buildings have been renovated and modernised. Another notable church is that of St Joseph. The Gov. Building or Palacio de Gobierno is a long, white edifice of colonial type with pillars and archways on the first floor. Paseo del Ayuntamiento (q.v.) is a fine, broad, paved street leading to the Parque Juárez, with its stairways and tall trees. There are other streets called by such names as Street of Jesus Helps You, Street of the Virgin, Street of John the Carbon Burner, Street of the Devil's Pocket, and Street of the Bellringer. Coffee, tobacco, and sugar are grown and processed. Pop. 40,000.

**Jalisco**, state of central Mexico, on the Pacific, with a coastline 280 m. long, and covering an area of 31,152 sq. m. The state is traversed by the Sierra Madre, with its volcanic cones, Colima (12,750 ft) and Nevado (14,240 ft) being the highest. The chief riv. is the Rio Grande de Santiago, flowing out of Lake Chapala, and draining the N. portion of the state. The chief industries are gold, silver, and copper mining, and agriculture. Cotton and woollen goods, paper and tobacco are manuf. It is an attractive tourist area. Guadalajara (q.v.) is the cap. Pop. 1,747,100.

**Jalpaiguri**, tn of W. Bengal state, India, on the direct route (via Pakistan) from Calcutta to Darjeeling. It is well known as the centre of a great tea-growing area.

**Jalpan**, tn in Querétaro state, situated about 85 m. from Guanajuato, central Mexico. Tropical fruits are grown. Pop. 1350.

**Jaluit**, or Jalut, one of the Marshall Is. in W. central Pacific. It is the administrative centre of the group.

**Jam**, name applied to the preserve formed from fruit boiled with the correct proportion of sugar, which dissolves in the juice of the fruit as the latter is broken. The process of boiling sterilises the entire mixture, and causes the juice to develop the essential 'setting' properties due to the presence of 'pectin bodies' always present in ripe fruits. J., if carefully and well made, can be kept for sev. years, though the quality generally deteriorates after 12 or 18 months, owing to the crystallisation of the sugar, etc. The time requisite for boiling J. varies according to the nature of the fruit used. The heating process should be carried on over a slow fire, in order not to do away with the aromatic and flavouring principles of the fruit. If the boiling is hurried, these are carried away by the steam, and for this reason home-made J. is superior to commercial, the latter usually being boiled for a shorter period than the former. When J. is made from oranges or lemons and such fruits, it is termed 'marmalade.' The peel of these contains a large proportion of aromatic and flavouring matter,

and pectin is included in the preserve in the form of shreds. In fruit jellies, the juice of the fruit only is used, not the pulp as well, this being removed by straining. It is then boiled with sugar until ready to 'jelly.' Fruits are 'preserved' by covering with water in suitable utensils and heating to a high temp., the vessels being closed while hot. In home-made preserves, the actual proportion of sugar averages about 20 per cent; in commercial, from 10 to 50 per cent. See also PRESERVING.

**Jama Masjid**, see DELHI.

**Jamaica**, largest is. in the Brit. W. Indies, forming part of the Greater Antilles. It is situated in the Caribbean Sea, 90 m. S. of E. Cuba. It is 146 m. long, its greatest breadth being 51 m. Area 4411 sq. m. The is. is divided into 3 cos.: Cornwall in the W., Surrey in the E., and Middx in the centre, and 14 pars. J. is traversed by a mt range, running E. and W., which culminates in the Blue Mt Peak (7402 ft) in the E. region. From this ridge flow numerous rivs., which promote luxuriant vegetation, but, with the exception of the Black R., are useless for navigation. Black R. in the SW. is famed for Maggoty Falls and is navigable for 25 m. The Salt R., and the Cabaritta, are navigable for a few miles. Other notable rivs. are the Rio Grande, Roaring R., with its beautiful falls in St Ann's Par., and Rio Cobre, which empties into Kingston Harbour. There are many excellent harbours—Port Morant, Falmouth, Old Harbour, Port Maria, etc., but the finest is Kingston in the SE. It has an area of about 8 sq. m. of navigable water and a depth, in the navigable portion, of from 7 to 10 fathoms. The harbour is protected by a long spit of sand called the Palisadoes, 7½ m. long, at the extremity of which is Port Royal. The soil is very rich and fertile. The climate of J. is, on the whole, very healthy. By the coast it is warm (mean temp. 80° all the year), but the heat is lessened by cool breezes. The atmosphere is very moist during the 2 rainy seasons in May and Oct. Inland and on the uplands the climate is delightfully mild. The is. is frequently visited by thunderstorms, but the average ann. rainfall is only about 77 in. There are many valuable plantations. The chief trees grown are mahogany, balata, ebony, coconut, palm, lignum vitae, logwood, and cacti. There is a flourishing trade in fruit, chiefly oranges, bananas, pine-apples, mangoes, and grapefruit. Very fine coffee is cultivated, especially in the dist. of the Blue Mts. Maize, Indian corn, Guinea grass, chinchona, tobacco, and ginger are among the products of the soil.

**Industries.** In the old days sugar and rum were supreme, but in the early nineties of last cent. they were supplanted for the first time as the leading industries of J. by fruit, which has been steadily growing in importance since that time. The export of bananas has exceeded 25,000,000 bunches in a single year; the production of citrus fruit is also rapidly expanding, as also of coconuts. In recent

years, however, the banana crops have been much diminished by the Panama and leaf-spot diseases (*see BANANA*). Despite these, and the severe hurricane of 1951, exports reached 11 million stems (approximately) in 1956, the total being made up of 88 per cent Latacan and 12 per cent Gros Michel. J. is famous for its rum, which is still reputed to be the best in the world. Coconuts and copra are grown for export. J. is the chief source for the supply of pimento, or allspice, and for annatto. Other industries include cattle, sheep, horse, and mule breeding, and dairying. Rice-growing is of increasing importance and cocoa is said to have good prospects. The prin. manufs. are rum, oils, mineral waters, matches, and cooking fats. There are cigar and cigarette factories, distilleries, breweries, and cement and textile factories, etc. Bauxite is of increasing importance; total output in 1956 amounted to over 3,500,000 tons, some 600,000 tons of which were locally processed into alumina. There are 3 operating companies, and production is increasing rapidly. Whereas neither bauxite nor alumina was exported up to 1954, in 1955 their combined export value was over £9,900,000. Apart from bauxite and alumina, other exports are sugar, bananas, coffee, cocoa, ginger, cigars, fruit juices, and pimenta. Trade in 1943 and 1944 aggregated only between £11½ million and £13½ million. Total imports, 1943, were £7,311,340, and 1955, £45,673,000; total exports, 1943, were £4,237,431, and 1955, £32,736,000. Imports from the U.K., 1943, were £2,566,302, and 1955, £18,389,000; exports to the U.K., 1943, £738,688, and 1955, £16,685,000. All these figures demonstrate the expected post-war increase. Before the war the large supply of cheap labour, coupled with the steep fall in the world price of sugar—where W. Indian cane-sugar has to compete with beet-sugar—resulted in low wages and a reduced standard of living; there were serious riots in 1938. These, following on riots in Trinidad, led to the sending out of a Royal Commission under Lord Moyne (later Secretary of State for the Colonies) to investigate the W. Indian colonies generally and to the organisation of a variety of development schemes. Much was done to improve conditions in J. by grants and loans under the Colonial Development and Welfare Acts. The Industrial Development Law of 1952 has stimulated manufs. The tourist trade in J. is now growing; in 1956 there were over 160,000 visitors (nearly 40,000 more than in 1955) and the tourist industry is valued at about £8 million a year.

**Communications.** The is. is intersected by good roads, and there are some 203 m. of railway. The J. Gov. railway (gauge 4 ft 8½ in.) starts from Kingston, which it connects with Spanish Town (33 m.), Old Harbour, Porus, and Montego Bay. Another line runs from Spanish Town to Bog Walk and Port Antonio. From Bog Walk, Ewarton is reached by another branch line and another line opens up the Rio Minho valley and Upper Clarendon

from May Pen. Kingston has a service of electric trams, and motor omnibus services cover the is. There are telegraph stations and post offices in every tn and in many vils. In 1954, 1017 vessels of 2,879,341 registered tons entered Jamaican ports. There are airfields at Montego Bay and Palisadoes.

**Chief towns.** The chief tn is Kingston, the seat of gov. and the largest port and tn (q.v.); the next in importance are Spanish Town, Montego Bay, and Port Antonio. Headquarters House, formerly Hibbert's House, where the Legislative Council has met since 1870 (when the seat of gov. was transferred from Spanish



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#### BANANA HARVESTING IN JAMAICA

Town to Kingston), and the colonial secretary's offices are situated in one of the few buildings of note in Kingston which escaped the earthquake and fire in 1907. A notable institution of Kingston is the Institute of J., rebuilt, after the earthquake, in reinforced brick and concrete. It has a large library, especially rich in Jamaican and W. Indian literature. In its hist. gallery are many notable treasures, including the original 'Shark Papers' exploited by Michael Scott (q.v.) in his *Cruise of the Midge*; the bell of the old church of Port Royal; and 2 silver-gilt maces, formerly belonging to the Council and the House of Assembly. The institute also has a museum containing zoological, geological, botanical, and archaeological specimens. King's House, the residence of the governor, is 4 m. from Kingston, in St Andrew, on the Liguanea Plain. Port Royal, at the extremity of the Palisadoes, is of historic interest, having been the H.Q. of the buccaneers, and the mart of their spoils. Prior to the

earthquake of June 1692 it was reputed to be the finest in the W. Indies. In Port Royal is Fort Charles, where Nelson commanded in 1779. The staircase to what is known as 'Nelson's Quarter Deck,' a space on the ramparts by the admiral's old quarters, still stands. Port Royal used to be a notable naval station, but the dockyard was closed in 1905, after an existence of 2½ cents. Spanish Town (13 m. from Kingston), the old St Jago de la Vega or St James of the Plain of the Sp. days, was formerly an important tn, and the well-built group of gov. buildings round its central square bears witness to its former grandeur. The most notable of these was the King's House, the former residence of the governors, of which little more than the façade remains. The N. side of the square is ornamented by a stately memorial to Adm. Rodney, victor of the battle of the Saints (q.v.). Near the square is the cathedral, dedicated to St Catherine, whose red brick fabric is in pleasing contrast to the surrounding foliage. It is one of the 3 oldest eccles. buildings in the W. Indies (the others being the cathedrals at Havana and Cartagena). Bog Walk is a vil. close by a noted gorge of the Rio Corbe. Port Antonio, on the N. side of the Is., 75 m. by train from the cap., is situated on the shore of a spacious harbour. Formerly a vil. of modest size, it rose to a position of prosperity through the banana industry, but suffered when the United Fruit Co. moved their H.Q. to Kingston. Montego Bay, second tn of J., is 112 m. by rail from Kingston. When visited by Columbus it was a large Indian vil. and traces of Arawak life have been found in the neighbouring caves. Its par. church is one of the handsomest in the Is. Savanna-la-Mar, the chief tn of Westmoreland, is the port of a sugar, coffee, etc., growing dist. Falmouth (106 m. from Port Antonio) was once a port of some note. Not far from Ewarton are the Roaring R. Falls, the largest waterfalls in J. St Ann's Par. is a favourite place of visit on account of the views from Mt Diablo. Mandeville is a favourite resort of winter visitors to J.

**Population.** The estimated pop. in 1956 was 1,579,620, the natural increase being about 26 per thousand. The European pop. numbers about 15,000, the coloured about 200,000, the Indian and Chinese 30,000, and the rest is mainly African.

**Dependencies of Jamaica.** Under the Gov. of J. are Turks and Caicos Is. (q.v.) and Cayman Is. (q.v.).

**Constitution and administration.** A new constitution for J. came into force in Nov. 1944. The position of J. was unique, because the colony was returning to a form of responsible representative gov. after an interval of 78 years, and because the proposals for reform submitted to the spokesman for organised public opinion were, to all intents and purposes, adopted in their entirety. A bicameral legislature was set up, consisting of a House of Representatives (the lower house) elected on a basis of universal adult suffrage (women

were enfranchised in 1919, but there was then a prohibitive property qualification) and a nominated Legislative Council (the upper house) of official and non-official members. The privy council and an executive council with the governor himself as chairman (with a casting, but not an original, vote) completed the governmental organisation. In Dec. 1944 a general election returned to the House of Representatives 23 Labour members, 4 representing the People's National party, and 5 Independents—these latter closely allied with the J. Labour party led by Alexander Bustamante, who became minister of communications. In 1946 serious labour troubles occurred leading to some fatal casualties, and Bustamante and the minister for social welfare were tried on a charge of manslaughter, but were acquitted. The state of the parties after the election in Jan. 1955 was People's National party, 18, and J. Labour party, 14, since changed by by-elections to People's National party, 19 members, J. Labour party, 12, Independents, 1. Following on the J. (Constitution) Order in Council, 1957, in Nov. of that year the Executive Council was replaced by a Council of Ministers of 12 members (10 from the House of Representatives and 2 unofficial members of the Legislative Council), presided over by the chief minister. The governor was given authority to summon special meetings of the Council of Ministers and to preside at them. As before, the chief minister was to be appointed by the governor subject to a vote of confidence from the lower house; other ministers continued to be appointed by the governor on the chief minister's recommendation.

**Education.** In 1946 the Imperial Gov. decided to estab. a W. Indian Univ. College in J. This has been built at Mona, 7 m. from Kingston, and is entirely residential. It awards London Univ. degrees. In 1955-6, 444 students registered, of whom 141 were women. In 1956 the 706 elementary schools had 233,000 registered pupils. There are 29 secondary schools and institutes.

**History.** J. was discovered on 4 May 1494 by Columbus, who called it Sant Jago, but it has retained its Indian name 'Xaymaxa' or Xaymaca, 'land of water.' According to Frank Cundall, J.'s modern historian, the distinction of being the place of his landing appears to be about equally divided between St Ann's Bay and Port Maria. It was not till 9 years later, on his fourth and last voyage, that Columbus again visited the Is. Being caught in a violent storm, he ran his ships aground near St Ann's Bay, on the N. coast. When Columbus d. (1506) his son Diego inherited his property and went out to Hispaniola as governor. On arriving there he found that J. had been partitioned between 2 Spaniards, and in order to estab. his title, he sent Esquivel to found a settlement in J. under his direction. This settlement was founded on the N. side; but in 1534, because the S. coast was healthier and more suited to vessels

sailing to and from Spain, the town of St Jago de la Vega, now Spanish Town, was founded, and this soon became the chief town. In 1598 the town was attacked by the English under Sir Anthony Shirley, who pillaged Spanish Town. J., however, remained in Sp. hands for 161 years, and it was not until 10 May 1655 that it changed hands, when Adm. Penn and Gen. Venables, having been disastrously defeated on 17 and 25 April off Hispaniola, gave up the attempt on that island and sailed for J. instead. Governor Don Christoval Arnaldo Yassai was forced to capitulate on 17 May. Later, under the auspices of the viceroy of Mexico and the governor of Cuba, a formidable expedition was fitted out with which Don Arnaldo hoped to recover J. But the bravery of the Eng. soldiers dismayed the Sp. commanders at sea and they left the Sp. invading forces in J. to their fate and to the apathy of the Sp. colonists. After this we enter on the constitutional period of Jamaican hist. when civilian governors succeeded military men. The first Eng. governor was Gen. D'Oyley, who may be regarded as the real conqueror of J. In 1661 D'Oyley's military command was changed into a civil governorship and his commission from Cromwell instructed him to govern with the advice of an elected council. The African slaves of the Spaniards, who had been brought into the island after the virtual extermination of the Arawaks, and who were called Maroons, fled to the mt. fastnesses, and they were not finally pacified until the end of the 18th cent. when, following a rebellion, many of them were deported to Nova Scotia. The year 1760 was notable in Jamaican hist. for the insurrection of the Coromantyns in Ballad's valley under a leader called Tacky—certainly one of the most dangerous risings in Jamaican annals. In June 1670 the Brit. occupation of J. was formally recognised by the treaty of Madrid. Colonisation went on and there was a large influx of soldiers and of undesirable refugees, neither of whom made good settlers. Other settlers came from Nevis and other W. Indian islands. J. at this time became one of the hiding places of the buccaneers, freebooters of all nationalities, who were opposed to the rule of Spain. One of the most famous was Henry Morgan (q.v.), whose exploits are narrated by the Dutch buccaneer, Esquemeling, who sailed with him (see John Esquemeling, *Buccaniers of America*, 1684). Morgan eventually became governor of J. as Sir Henry Morgan.

J.'s hist. from the late 1780's until 1834 is the story of the anti-slavery struggle to eventual emancipation. Successive colonial secretaries sought to prevail on the Jamaican legislature to adopt orders in council for the betterment of the condition of the slaves, but the old House of Assembly always proved obstructive. Victor Hugues, the Fr. W. Indian revolutionary and friend of Robespierre, came to J. and tried to work up insurrection and bloodshed, and this it was that led to the rebellion of the Trelawney tribe of

Maroons in 1795. In the critical days of J.'s hist. in the early 1830's, it was fortunate for the island that it had as its governor the Earl of Mulgrave, later Lord Normanby, who was the ideal man to handle a petulant House of Assembly, which was always disposed to dispute the authority of the home gov. and even the royal prerogative. It was largely through his conciliatory bearing and firmness that the Assembly was at length induced to accept the Bill for the abolition of slavery. Edward John Eyre, a most experienced colonial administrator, became governor of J. in 1864. The island, fell upon evil times through economic depression and the state of its finances necessitated new taxation. The resulting discontent led to a rising on 11 Oct. 1865, known as the outbreak at St Thomas in the E. Martial law was proclaimed in the district and George Wm Gordon, who was said to have incited the people, was taken from Kingston to Morant Bay, tried summarily, and hanged. Gordon was a coloured member of the Legislative Council and a considerable landowner, but he was prone to inflammatory utterances. This may or may not have justified his apprehension; but, by transferring him from Kingston, where martial law had not been declared, to Morant Bay, where it had, Eyre committed a technical blunder. Later an inquiry was begun in England by a hostile committee of which John Stuart Mill was chairman, but a rival committee under Thomas Carlyle and Charles Kingsley defended Eyre (see on this famous case E. B. Underhill, *The Tragedy of Morant Bay*, 1895—a biased work by a man who played a conspicuous part in the transactions he records 30 years later; also controversial, but on the other side, is Lord Olivier's *The Myth of Governor Eyre*, 1933, and see also the judicially minded work *The Sugar Colonies and Governor Eyre*, 1936, by Wm Law Mathieson). This reverberating event was followed in 1866 by a drastic change in the gov. of J. The one-time recalcitrant Assembly, with its charter and large local rights exercised by a very small class, had become of small influence now that the large sugar planter, who, in 1805, numbered nearly 900 were reduced to 300 in 1865. Strong central gov. under the Crown was the only remedy, and so J. was made a crown colony with a gov. and council appointed by the Imperial Gov. (see further under *Constitution and administration* above).

See E. Long, *The History of Jamaica* (3 vols.), 1774; Rev. G. W. Bridges, *The Annals of Jamaica* (2 vols.), 1828; W. J. Gardner, *A History of Jamaica* (new ed.), 1909; F. Cundall, *Studies in Jamaica History*, 1900; H. G. de Lisser, *In Jamaica and Cuba*; Lady Nugent's *Journal*, privately pub., 1839 (new ed., ed. by F. Cundall, W. Indian Committee, London, 1934); M. G. Lewis (Monk Lewis), *Journal of a West India Proprietor*, 1815-17 (ed. by Mona Wilson, 1929); Lord Olivier, *Jamaica: the Blessed Island*, 1936; W. J. Brown, *Jamaican Journey*, 1949; Peter Abraham, *Jamaica*, 1957.

**Jamb**, in architecture, the side of a doorway, window opening, or fireplace.

**Jambes**, tn in Belgium and S. suburb of Namur, from which it is separated by the Meuse. It is engaged in agriculture and manufs. glass, crystal, lamp-black, dynamite, and asphalt. Pop. (1955) 11,100.

**Jambi**, tn in Sumatra, on the r. b. of the Jambi R., about 125 m. NNW. of Palembang. Many Hindu sculptures have been discovered in its vicinity. Pop. 22,000.

**Jamblichus Chalcidensis**, see **IAMB-LICHUS**.

**Jamboree**, originally a drinking-bout or merry-making, but now applied by the Boy Scouts' Association to their national and world rallies. In euchre (q.v.) it denotes a single hand containing the 5 highest cards.

**Jambu-dvīpa**, one of the 7 continents of the world, in the Mahābhārata, embracing the gods' dwelling-place and the mt of Meru with its 'jambu' or 'rose-apple' tree. Mts divide it into 9 countries. Bharata (India) being the chief. Poetry and Buddhist works give the name to all India. Others apply it to the mt dists. only (NW.), and others to the whole of Asia.

**Jambul**, see **DZHAMBUL**.

**James I** (1394-1437), King of Scotland, the son of Robert III., at an early age was sent to France by his father. He was, however, captured by Eng. sailors on his way there, and was imprisoned in England by Henry IV (1406). In the same year and probably a month later than his capture, his father died and he became nominally King of Scotland. The Gov. of Scotland was conducted by the Duke of Albany, the king's uncle, who showed no desire to ransom his nephew. Henry gave J. an excellent education, and J. grew up the ideal Renaissance prince—handsome, energetic, accomplished in the arts and athletics. After accompanying Henry V to France he was, in 1424, restored to Scotland, the Scots promising a huge ransom. He had married, in the same year, Jane Beaufort, daughter of the Duke of Somerset. He was crowned in 1424 and with his *real* accession begins constitutional monarchy in Scotland. He caused the overthrow of Murdoch, Duke of Albany, and his son, and proved so powerful a king that he made many enemies. He crushed the turbulent nobility and was finally murdered by Sir Robert Graham, who had been imprisoned by J. and subsequently banished. J. wrote two poems, *The Kingis Quair* and *Good Counsel*. See A. Mure Mackenzie, *The Rise of the Stewarts, 1329-1513*, 1935, and E. Balfour-Melville, *James I*, 1936.

**James II** (1430-60), King of Scotland, the only surviving son of James I. He was brought up during his minority under the care of his mother, the Earl Douglas acting as regent, and after the second marriage of the queen he passed into the custody of Sir Alexander Livingstone. Almost continual civil war waged during the period of his minority, the prize of

the victors being the custody of the king. In 1449 J. married and assumed the royal power. He immediately proved himself a strong king. He had Livingstone executed and later stabbed Douglas with his own hand. He crushed the power of the great nobles, and was supported by the majority of them, and also by Parliament. He sympathised with the Lancastrian cause in England during the Wars of the Roses, and after their defeat he attacked the Eng. possessions in the S. of Scotland. At the siege of Roxburgh he was killed by the bursting of a cannon. Gov. and justice were improved and reformed during his reign. See A. Mure Mackenzie, *The Rise of the Stewarts, 1329-1513*, 1935.

**James III** (1451-88), King of Scotland, the eldest son of James II. He became king at the age of 9, and his minority from 1465 was spent in the custody of Sir Alexander Boyd. In 1469 he married the daughter of the King of Denmark and assumed power himself. The nobles submitted to him, but within a few years J. had ceased to take any interest in affairs of state, and the country grew increasingly unruly. His brothers plotted against him; both were arrested and one of them *d.* in prison. The other fled to England and was recognised by Edward IV as King of Scotland. War broke out with England, and the Duke of Albany and Richard, Duke of Gloucester (Richard III), marched on Edinburgh. Peace was made, but again Albany rebelled, but *d.* in 1485. J.'s slack rule finally resulted in revolt by the nobles. He was defeated at Sauchieburn, where, according to tradition, after the battle he was slain by a soldier in the disguise of a priest who was called in to shrive him. See A. Mure Mackenzie, *The Rise of the Stewarts, 1329-1513*, 1935.

**James IV** (1475-1513) was the eldest son of James III., against whom he was obliged to take the field at Sauchieburn. He was crowned immediately after his father's death, and at once took over the management of the affairs of the realm. He had little or no trouble with his nobles after the frustration of a plot formed at the beginning of his reign to hand him over to the Eng. king (Henry VII), and he was intensely popular with the commons. He supported Perkin Warbeck against Henry VII, but the projected war with England came to nothing, and in 1503 the marriage between Margaret Tudor and J., which was to result in the union of the crowns a hundred years later, took place at Holyrood. He raised Scotland to the highest position she had yet attained in Europe, and during his reign the Scottish court was refined and enlightened. The accession of Henry VIII led to continual bickerings between the 2 countries, and finally in 1513 J. declared war. He gained some successes at first, but was finally overthrown at Flodden. He *d.* fighting bravely, and with him perished the flower of Scottish nobility. He was a man of generous nature, and an energetic king. See J. Skene, *Memorabilia Scotica, 1475-1612*, 1923, and A. Mure



Mackenzie, *The Rise of the Stewarts, 1329-1513*, 1935.

James V (1513-42), King of Scotland, son of James IV, succeeded his father at the age of 1 year, and between the years 1513-28 the country was in a state of constant turmoil, owing to frequent collisions between the Fr. and the Eng. parties in Scotland. The queen dowager was for a time regent, but finally Albany, at the head of the Fr. party, occupied that position. The king fell into the hands of the Douglasses, who kept him prisoner until the year 1528, when he escaped and began to rule personally. He put down disorder with a firm hand, and proved himself a very capable king, but he was unpopular with the nobles, since he restricted their power too much. He was highly popular with the commons, however, whose rights he preserved. He married in 1538 Mary of Guise. He supported the old form of faith in Scotland, and refused to follow the lead given by his uncle, Henry VIII. This refusal to listen to the advice of Henry VIII led to ill feeling between the 2 countries, which terminated in 1542 in the outbreak of war. The nobles revenged themselves by deserting their king and leaving him to be overwhelmed at Solway Moss. Shortly afterwards he *d.*, learning as he lay on his deathbed that a daughter had been born to him—Mary Queen of Scots.

James I (1566-1625), King of Great Britain and Ireland (James VI of Scotland), only child of Mary Queen of Scots and her second husband, Henry, Lord Darnley, *b.* Edinburgh. He became King of Scotland in 1567 on his mother's enforced abdication, but his effective rule did not begin until 1583. His childhood and adolescence were unhappy, abnormal, and precarious: J. had various guardians, whose treatment of him differed widely. Though he received a thorough education (George Buchanan was one of his tutors), it was one so weighted with rigid Presbyterian and Calvinist political doctrine that it is hardly surprising that a character like J.'s, quick-witted, sensitive, but fundamentally shallow, vain, and exhibitionist, reacted violently against it. He was to turn, for his political philosophy, to the attractive theory of the divine right of kings—a most striking contrast to the practical experience of his own childhood; and in personal matters sought solace in what contemporaries refer to as 'quiet purposes' with extravagant and unsavoury male favourites, who, in his later years, were to have a damaging effect on state affairs.

J.'s rule as King of Scotland is notable for his success in curbing the power of the nobility, and this, if carried through by dubious methods, shows his undoubted political ability to the full. His attempts to limit the authority of the Kirk were less successful. However, the prospect of soon succeeding Elizabeth I of England now diverted J.'s attention from the Scottish domestic scene which he found so distasteful. The Eng. succession became his absorbing obsession, and his shameless bargaining on the subject led

Elizabeth to refer to him derisively as 'that false Scottish urchin.'

In 1603 he became King of England. He had married Anne of Denmark in 1589. He brought to London a train of greedy Scottish favourites who incurred immediate popular dislike. At once he attempted to apply his political theory of divine kingship; but his overriding desire was to maintain his Eng. throne, and therefore, unlike his son, Charles I, he was always prepared to give way on principle whenever it was obvious that its application would be politically dangerous.

Until 1612 J. was content to act mainly on Cecil's advice; but after the latter's death all restraint vanished, and henceforth J. and his favourites were the only policy-makers. His foreign policy, aiming primarily at a *rapprochement* with Spain and a general peace, with England as Europe's arbitrator, though largely dictated by J.'s personal vanity and his desire to avoid a drain on state finances, which would involve a dependence on Parliament, was magnificent in conception, but completely unrealistic at the time. It failed completely, incurring a loss of national confidence and popular prestige which reacted disastrously on J.'s successor. The most lasting monument of J.'s foreign policy, one which he can hardly have contemplated, was the marriage of his daughter Elizabeth to the Elector-Palatine which was to result eventually in the Hanoverian succession to the Brit. throne.

His religious policy was basically little more than a logical continuance of his predecessor's: an assertion of crown supremacy in religious matters, and an intolerance of the forces which militated against it, both Puritan and Catholic. But circumstances were changing: Puritan influence and political awareness were increasing fast among the squirearchy, whose importance J. never appreciated; while his economic opportunism, with its disastrous effects on commerce, alienated city interests, already dissatisfied with his religious policy. The Gunpowder Plot (1605), with its anti-Catholic reaction, gave J. a temporary popularity which soon dissipated.

J.'s willingness to compromise politically, even while continuing to talk in terms of absolutism, largely accounts for the superficial stability of his reign. But the effects of many of his actions were long-term: the economic recession was not fully obvious until after his death, and the religious and constitutional crises took time to mature. Perhaps most serious was the effect of J.'s philosophies, which J. himself was always ready to abandon when they threatened his crown, on the mind of his more sincere, high principled, but far less astute son, Charles. See lives by C. Williams, 1934, and D. Harris Wilson, 1956.

James II (1633-1701), King of Great Britain and Ireland, was the second surviving son of Charles I, and was created Duke of York in 1643. During the Civil war he was captured by Fairfax, but

escaped to Holland in 1648. During the 12 years which elapsed between this date and the Restoration, he proved himself an able soldier, and was commended both by Turenne and Condé. On the restoration he was appointed Lord High Admiral and Warden of the Cinque Ports. He proved himself an able officer and a wise administrator, and gained a great reputation both for ability and courage. His private life was as immoral as his brother's. He married Anne Hyde (q.v.) in 1659. She bore him 2 daughters, Mary and Anne, who both later ascended the throne. His second wife was Mary D'Este of Modena, who in 1688 bore him a son, James



JAMES II

Francis Edward, known as the Old Pretender. J. made no secret of the fact that he was a Rom. Catholic (probably from about 1670), but after the passing of the Test Act, he was forced to give up his offices, and later the agitation caused by the Popish Plot drove him to the Continent for a time. His exclusion from the throne was proposed by the Whigs, but not carried, and in 1680 J. returned to England. He was first made High Commissioner for Scotland, where his persecution of the Covenanters made him hated, and later he was again made Lord High Admiral. He succeeded to the throne in 1685, on the death of Charles II. He promised to defend the Church of England and the laws, and at first seems to have been popular enough. His position was secure enough to ensure that Monmouth's ill-planned rising of 1685 was an utter failure; the unnecessarily savage repression which followed probably marks the beginning of J.'s downfall. His religious zeal is unquestionable, but he was blind to political considerations and seems to have had no idea of the strength of Protestant opinion in England or of the very real political power of the Estab. Church. He introduced Catholics into the army and the univs., and assumed the right of dispensing with and suspending the laws of England. The Declaration of

Indulgence, and the refusal of the bishops to read it in the churches, led to their trial for seditious libel (1688). They were acquitted amidst the applause of the nation and even of the army which J. had gathered at Hounslow to overawe London. The birth of a son to him destroyed Eng. hopes of a Protestant succession, and decided a group of Eng. nobles of both prin. political factions, some of whom had previously supported J., to send an invitation to William of Orange to come and claim the Eng. crown. J. was apparently sublimely unconscious, in spite of repeated warnings, of what was happening. The army went over to William on the latter's arrival in England, and J. fled to France. He tried to recover his throne from Ireland, but was defeated at the Boyne (1690). Two other attempts to restore him (the battle of La Hogue (q.v.) and the 'assassination plot') failed, and J. d. in exile at St Germain in France. See lives by H. Belloc, 1928; F. M. G. Higham, 1934; F. C. Turner, 1948; also J. Marriott, *Crisis of English Liberty*, 1930, and M. Hay, *Winston Churchill and James II*, 1934.

James, David (1839-93), actor, whose real name was Belasco, *b. London*. He made his first appearance at the Princess's Theatre under Charles Kean, but subsequently appeared at the Royalty in 1863, where he played in Burnand's burlesque of *Leian*, and estab. his reputation in 1870 with his performance of Zekei Homespun in *The Heir at Law*. His most successful role was Perkyn Middewick in *Our Boys*. This piece was played over 1000 times, and was claimed as 'the longest run on record,' which title it held for years.

James, George Payne Rainsford (1801-1860), novelist, *b. London*. Taking to literature early, he attained some success as a writer of miscellaneous articles, and in 1822 produced a *Life of the Black Prince*, followed within the next 30 years by over 100 books, mostly novels, the remainder hist., plays, and verse. Many of his tales are historical, *Richelieu*, 1829, being one of the best. They were very popular, having plenty of adventures told in good English, though the characters are mere lay-figures. His style is parodied by Thackeray in 'Barbazure' in *Novels by Eminent Hands*. Though J.'s hist. are compilations of no great value, he was for some time historiographer-royal to William IV. From 1850 to 1860 he was Brit. consul successively in Massachusetts, Virginia, and finally Venice, where he d.

James, Sir Henry (1803-77), director-general of the Ordnance Survey of Great Britain, *b. Cornwall*. He was appointed in 1827, and was made director-general in 1854. He was also director of the topographical dept of the War Office in 1857, and was knighted in 1860. He is famous for having applied photozincography to ordnance maps (1859), on which subject he pub. a book entitled *Photozincography and other Photographic Processes employed at the Ordnance Survey Office*.

James, Henry, Lord (of Hereford) (1828-1911), lawyer and statesman, *b. Hereford*

and educ. at Cheltenham. Called to the Bar in 1852, he became Q.C. in 1869, entering Parliament the same year as Liberal member for Taunton, which seat he retained until 1885. In 1873 he was appointed solicitor-general, afterwards attorney-general, and received a knighthood. Resuming office under Gladstone in 1880, he was offered the lord chancellorship in 1886, but declined it, having broken away from his leader on the Home Rule question. Elected for Bury (Lancs) in 1885, and re-elected in 1886 and 1892, he became a leading Unionist. At the holding of the Parnell Commission he appeared with Sir Richard Webster as counsel for *The Times*, and in 1895 took his seat in the Salisbury cabinet as chancellor of the Duchy of Lancaster with a peerage. A convinced free trader, he strongly opposed the Tariff Reform movement in 1903. He was a good sportsman, and for some time president of the M.C.C.

James, Henry, O.M. (1843-1916), Amer. novelist, b. New York City, son of a theological writer and brother of Wm J. (q.v.). A long visit to Europe in his boyhood laid the foundation of the passion which he had all his life for European culture. After an unsystematic education, which included the study of law at Harvard, in 1865 he began contributing reviews, sketches, and short stories to various periodicals. In 1871 his first novel, *Watch and Ward*, appeared serially, and in 1875 his first vol. of short stories was pub. In the same year he removed to London, where he lived for more than 20 years.

It has been generally said that his work falls into 3 periods, which Philip Guedalla irreverently labelled James I, James II, and the Old Pretender. In the first he was occupied with the impact of Amer. life on the older European civilisation. To this period belong *Roderick Hudson*, 1875, his first successful novel, which marks the end of his apprentice stage, and the still greater *Portrait of a Lady*, 1881; others are *The American*, 1877, *Daisy Miller*, 1879, *The Princess Casamassima*, 1886, and *The Bostonians*, 1886. His middle period, during which he developed purely Eng. themes, begins with *The Tragic Muse*, 1890, and continues with *The Spoils of Poynton*, 1897, *What Maisie Knew*, 1897, and *The Awkward Age*, 1899. In his third period he returned to his original theme of the contrast between Amer. and European character, and concentrated on depicting psychological interplay with the minimum of action, thus bringing the accusation that 'nothing ever happens' in his books. The last 3 novels pub. in his lifetime were *The Wings of a Dove*, 1902, *The Ambassadors*, 1903, and *The Golden Bowl*, 1904. Two long novels, *The Ivory Tower* and *The Sense of the Past*, were left unfinished at his death.

His vols. of short stories include *Terminations*, 1895, *The Two Magics*, 1898, and *The Altar of the Dead*, 1909. Between 1890 and 1894 he tried his hand as a dramatist, but without great success. He also wrote a number of critical works, including *French Poets and Novelists*,

1878, and a study of Hawthorne, 1879. *Portraits of Places*, 1883, *A Little Tour in France*, 1885, and *Essays in London and Elsewhere*, 1893, are descriptive sketches of travel, and *The American Scene*, 1906, relates his impressions on returning to the U.S.A. after 20 years' absence. He also pub. vols. of reminiscences, *A Small Boy and Others*, 1913, *Notes of a Son and Brother*, 1914, and *The Middle Years*, 1917, which is unfinished; his letters were ed. in 1920. He became naturalised as a Brit. subject in 1915, received the Order of Merit at the New Year Honours of 1916, and soon afterwards d. in Chelsea. He was never married. For the collected ed. of his works, begun in 1907, he wrote a series of critical prefaces which summarise his theories of the art of fiction. As a writer he is subtle and fastidious, portraying with delicate psychological nuances the complex characters of ultra-civilised people.

See studies by F. M. Hueffer, 1914; Rebecca West, 1916; J. W. Beach, 1918; P. Edgar, 1927; F. O. Matthiessen, 1944; also Van Wyck Brooks, *Pilgrimage of Henry James*, 1928; F. W. Dupee (ed.), *The Question of Henry James*, 1947; L. Edel, *Henry James: the Untried Years*, 1953.

James, Montague Rhodes, O.M. (1862-1936), bibliographer, palaeographer, and historian of book production, b. Goodnestone, Kent. Educ. at Eton and King's College, Cambridge, he became director of the Fitzwilliam Museum. In 1905 he was elected provost of King's, from 1913 to 1915 was vice-chancellor of Cambridge, and in 1918 became provost of Eton. He pub. the scientific catalogues of the MSS. of every Cambridge college, as well as those of Fitzwilliam Museum (Cambridge), Aberdeen Univ., H. Yates Thompson Library, Eton College, Lambeth Palace, Westminster Abbey, and other important collections. He also did valuable work on the Apocrypha, and ed. sev. illuminated MSS. (copies of the Apocalypse, the Psalter, Bestiaries, and so on). In popular vein were his 2 collections of *Ghost Stories of an Antiquary*, 1905 and 1911. He was elected a fellow of the Brit. Academy in 1903 and in 1930 was awarded the Order of Merit. He also held honorary degrees from Oxford, Cambridge, St Andrews, and Dublin. See memoir by S. G. Lubbock.

James, St: (1) *The son of Zebedee and Salome* (Matt. xxvii. 56; Mark xv. 40), who on one interpretation of John xix. 25 was a sister of the Blessed Virgin, and brother of John, one of the innermost circle of the Twelve. He and John were nicknamed Boanerges (Sons of Thunder) by Jesus (Mark iii. 17). He remained in Jerusalem with the other Apostles after the Ascension, and was the first of them to suffer martyrdom, 44, being slain by Herod Agrippa (Acts xii). Legend tells of his missionary journeys to Spain, whose patron saint he became, but the earliest written record of this is by Notker of St Gall, in the 9th cent. (2) *Another Apostle, called* (Mark iii. 18 and parallels) *the son of*

**Alphæus.** Mark xv. 40 mentions, as standing by the cross, Mary the mother of J. the Little (Less) and Jesus. The identification of J. the Little with J., son of Alphæus is generally accepted. In Catholic tradition he is further identified with (3) *James, the Lord's brother*, whom we find in Acts presiding over the infant Church at Jerusalem.

**James, St. The Epistle of,** is placed first among the Catholic epistles. Its title is short, 'James, a servant of God and of the Lord Jesus Christ, to the twelve tribes which are scattered abroad' (this reference to the 12 tribes and the dispersion is figurative and descriptive of the Church on earth). The traditional view identifies this James with James the Just, Bishop of Jerusalem, James, son of Alphæus, and James, the Lord's brother. Those who hold this view place the date of the epistle very early, before the epistle to the Hebrews, probably before St Paul's first missionary journey, and certainly before the Council of Jerusalem (AD 49), the problems of which are not mentioned, though James was prominent in it. The epistle is therefore not to be regarded as a polemical treatise against the Pauline view of faith, but as an independent address to Jewish Christians from a different point of view. The epistle shows such numerous and close resemblances with the Sermon on the Mount as recorded by Matthew that the writer must have known that Gospel (if its priority and early date can be accepted—see MATTHEW) or at least a source of it, written or oral. Though the apparent antithesis between the insistence of Paul on justification by faith and the emphasis which James lays upon works is great, so much so indeed that Luther characterised the epistle as 'an epistle of straw,' the 2 views are not contradictory. The epistle deals with life not with doctrine. There was some difficulty as to its admission into the Canon until the middle of the 3rd cent. There is no real difficulty about accepting the traditional authorship. It is written in good Greek, but Palestine was bilingual and natives of such a land are not necessarily illiterate in either tongue; often they are fluent in both. There are in fact coincidences between the Epistle and the speech of James in Acts xv (e.g. J. ii. 7—R.V. margin). See commentaries by J. H. Ropes, 1916; Chaine, 1927; Dinart (in C. Gore's *New Commentary on Holy Scripture*, 1928); J. Bonsirven, 1948.

**James, William (d. 1827),** naval historian, practised in the Jamaica Supreme Court (1801-13). He was detained prisoner in the U.S.A. in 1812, but escaped to Nova Scotia in 1813. He pub. various pamphlets on the comparative merits of the Eng. and Amer. navies in 1816, but his great work is his *Naval History of Great Britain from the Declaration of War by France in 1793 to the Accession of George IV* (1820). This appeared in 5 vols. in 1822-4, and was reprinted in 6 vols. in 1826.

**James, William (1842-1910),** Amer. philosopher, brother of Henry J., the

novelist (q.v.), took his degree of M.D. at Harvard in 1870, and became lecturer there in anatomy and physiology in 1872. Inheriting from his father a love for subtle reasoning and mental research, together with great power and freshness in expressing his theories, he became assistant prof. of philosophy (1880), prof. (1885), prof. of psychology (1889), and prof. of philosophy (1897-1907). His *Principles of Psychology*, 1890, gave him a wide reputation, and was reprinted in a condensed form in 1892. He wrote also *The Will to Believe*, 1897, *The Varieties of Religious Experience*, 1902, *Pragmatism*, 1907, *A Pluralistic Universe*, 1909, and *The Meaning of Truth*, 1909. His home was at Cambridge, Massachusetts, but he visited Europe on sev. occasions, and was invited to deliver the Gifford lectures on natural religion at Edinburgh (1899-1901) and the Hibbert lectures at Manchester College, Oxford (1908). Honorary degrees were conferred on him by the univs. of Padua, Edinburgh, Princeton, Oxford, Durham, and Geneva. See R. B. Perry, *The Thought and Character of William James* (2 vols.), 1935.

**James Allen's Girls' School,** founded in Dulwich, London, by James Allon, Master of Dulwich College, in 1741, and reconstituted in 1882 under a scheme of the Charity Commissioners. It belongs to the foundation of Alleyn's College of God's Gift.

**James Bay,** inlet in the S. part of Hudson Bay. It received its name from its explorer, Capt. Thomas James. It is about 300 m. long and 150 m. wide and contains a number of is. Moose Factory, at the mouth of the Moose R., is an important trading station of the Hudson's Bay Co.

**James Francis Edward Stuart,** see STUART, JAMES FRANCIS EDWARD.

**James River,** largest riv. in Virginia, U.S.A. It rises in the Allegheny Mts and flows into Chesapeake Bay. It has a length of 340 m., and is navigable for steamboats of deep draught as far as Richmond (i.e. 100 m. from its mouth). The chief tribs. are the Chickahominy and the Appomattox. Jamestown, the first permanent Eng. settlement, was located on this riv.

**Jameson, Anna Brownell (1794-1860),** authoress and art critic, b. Dublin. In 1831 she pub. her first important work, *Memoirs of Female Sovereigns*, followed by *Characteristics of Women*, 1832, *Beauties of the Court of Charles II*, 1833, and *Winter Studies and Summer Rambles*, 1838, the result of her visit to Canada. It was, however, as an art critic that she excelled, and her writings on the subject of art include *Companions to the public and private picture galleries in London*, 1842, *Lives of Early Italian Painters*, 1845, *The House of Titian*, 1846, *Legends of the Monastic Orders*, 1850, *Legends of the Madonna*, 1852. The work upon which her reputation chiefly rests, *Sacred and Legendary Art* (first part pub. in 1848), was completed, after J.'s death, by Lady Eastlake under the title of *The History*

of *Our Lord*, 1864. See memoir by Mrs Macpherson, 1878.

**Jameson, Sir Leander Starr** (1853-1917), politician and administrator, b. Edinburgh, and studied medicine in London (M.D., 1877). Breaking down from overwork in 1878 he went out to S. Africa, settling at Kimberley, where he was very successful, among his patients being President Kruger and Lobengula. He was intimate with Cecil Rhodes, and when the latter, assisted by J.'s influence with Lobengula, estab. the Brit. S. African Co., the doctor accompanied the first emigrant column to Mashonaland in 1890. Next year, being appointed administrator, he succeeded in checking a Boer trek 4000 strong, organised to dispute the Brit. possession of the country. In 1893 a Matabele invasion brought on a war in which J. took a leading part, and ended in the conquest of Matabeleland. Returning home for a rest in 1894 he went out again in 1895, and on 31 Dec. led that disastrous raid into the Transvaal which heralded so many troubles. Captured by the Boers, he was released, and was later sentenced to 15 months' imprisonment, but was loudly applauded in open court. Returning unofficially to Africa he became leader of the Progressive party after the war, and Premier on their success in 1904. His measures were liberal; the rebel prisoners were liberated and shortly afterwards restored to the franchise, while strenuous efforts were made to develop the resources of the country, railroads and education receiving special attention. In 1908 his party was defeated, and J. resigned office. He was made privy councillor in 1907, and baronet in 1911. See Col. H. Marshall Hole, *The Jameson Raid*, 1930.

**Jameson, Margaret Storm** (1897-), novelist, b. Whitby, Yorks. Educ. at Leeds Univ. and London, she was at different times publicity writer, dramatic critic, and editor. She married Prof. Guy Patterson Chapman. Among her finest novels are *The Lovely Ship*, 1927, *The Voyage Home*, 1930, and *A Richer Dust*, 1931, which form a trilogy telling of a shipbuilding family like her own; others are *The Three Kingdoms*, 1926, *Farewell to Youth*, 1928, *Cousin Honore*, 1940, and its sequel, *Cloudless May*, 1943, *The Other Side*, 1945, *The Black Laurel*, 1948, and *The Hidden River*, 1955. Her critical works include *Modern Drama in Europe*, 1920, and *The Decline of Merrie England*, 1930. *Full Circle*, 1928, is a one-act play, and *No Time Like the Present*, 1933, is an autobiography.

**Jamesstown:** 1. Cap. of St Helena (q.v.), situated on the NW. coast of the is. It has an open roadstead. Pop. 1500.

2. A city in Chautauqua co., New York, U.S.A., about 60 m. SW. of Buffalo, situated on Lake Chautauqua, and much patronised as a summer resort. It is a furniture manufacturing centre, and also produces toys, textiles, tools, and washing and milking machines. Pop. 43,350.

3. Former settlement in James City co., Virginia, U.S.A.; it was the first Eng.

settlement in the U.S.A., founded 13 May 1607. Only remains, however, of this settlement exist at the present day, and are incorporated in Williamsburg, the first cap. of Virginia.

**Jami, Nur ud-Din Abd ur-Rahman** (1414-92), great Persian poet, scholar, and mystic, b. Jam in Khorasan. He wrote lyrical poems and odes, 7 romantic or didactic *mahnavis* (q.v.), of which *Fusus u Zulaikha* and *Salaman u Absal* have been trans. into English, the former by Rogers (1885) and the latter by Fitzgerald (1856), and many other works, including lives of the saints, and the *Baharistan*, a collection of anecdotes and ethical reflections, which has also been trans.

**Jameson, John** (1759-1838), scholar and antiquary, b. Glasgow. After studying for the ministry he was ordained to the anti-burgher branch of the Secession Church at Forfar in 1781, and afterwards at Edinburgh in 1797. His chief work is *The Etymological Dictionary of the Scottish Language*, 1808; supplements in 1825; revised ed. in 1879-87. Among his pubs. are eds. of Barbour's *Bruce* and Blind Harry's *Sir William Wallace*.

**Jammes, Francis** (1868-1938), French poet and novelist, b. Tournai in the Pyrenees. In his earlier style there were the delicious *De l'Angelus de l'aube à l'Angelus du soir*, 1898, *Le Deuil des primevères*, 1901, and in his later Catholic style *Les Géorgiques chrétiennes*, 1911. Among his prose stories are *Clara d'Ellebeuse*, 1899, *Almaïde d'Etremont*, 1901, *Pomme d'Anis*, 1904, *Le Poète rustique*, 1920, *Les Robinsons basques*, 1925. His style is characterised by great simplicity. See A. de Bersancourt, *F. Jammes, poète chrétien*, 1910, and R. Mallet, *F. Jammes*, 1950.

**Jammu, Jamu, or Jummoo**, cap. of the Jammu prov. of the state of Jammu and Kashmir, India, and situated about 80 m. N. of Amritsar. It was once a seat of a Rajput dynasty, now the residence of the former Maharajah of Kashmir.

**Jamnagar, or Nawanagar**, tn and former state of India, on the Gulf of Cutch. The state is now merged in Saurashtra state, of which the Jam Sahib, former ruler, is Rajpramukh, or Governor. The famous cricketer, Ranjitsinhji, was Jam Sahib from 1907 to 1933.

**Jamnla**, see JABNE.

**Jamrud**, fort in W. Pakistan. It lies 10-12 m. to the W. of Peshawar at the entrance of the Khyber Pass. It played an important part in 1878-9 in the war with Afghanistan. A new railway line through the Khyber from J. to the frontier of Afghanistan was opened in 1925.

**Jamshedpur (Tatanagar)**, iron and steel city of India created by Jamshedji Tata and his successors in the Bihar jungle on a site near rich deposits of haematite in Singhbhum and conveniently close to the Jharia coalfield; pop. of the site was 5672 in 1911 and rose to 218,000 in 1951. Besides the iron and steel, allied industries have developed on the site to produce tinplate, cables, rails, wire, nails, farm

implements, and in recent years machinery of various types. When India attained independence, the J. plant was the largest of its kind in the Brit. Commonwealth, producing 1 million tons of steel a year. The city is also notable as being a planned city from the start of operations, with housing schemes for employees that are a pattern for India.

Jamshid, subject of many Persian poems and legends, is supposed to have belonged to the mythical 'Pishdadian' dynasty, and to have been dethroned by Zahhak, after a rule of 700 years. J. is said to have divided men into 3 classes, soldiers, artisans, and agriculturists, and to have invented the arts of music and medicine.

Jämtland, län or gov. of Sweden; chief tn, Östersund. Area 20,000 sq. m.; pop. 144,880.

Jan Mayen Island lies about 300 m. N. of Iceland, in the Arctic Ocean between Greenland and Norway. It is a craggy, volcanic is., whose mossy cliffs are the haunt of millions of seabirds, and whose desolate slopes, when the winter snow recedes, become alive with Arctic plants and an unexpected fauna of insects and spiders, and other small animals. Scattered throughout the is. are the craters of extinct volcanoes, many of recent origin. At one precipitous point, on Egg Bluff, steam still rises from the depths of the is.; near by, dominating the whole is., the mighty white Beerenberg, first climbed by J. M. Wordie (q.v.) in 1921, rises nearly 8000 ft, directly above the surf. From the ice-cap of this volcanic mt, which is about 80 m. round the base and one of the biggest volcanic cones in the world, some 15 glaciers drop towards the sea. The is. is economically useless; but it was conveniently situated for the estab. in 1921 of a meteorological station. It was once a vital factory site in the centre of the Arctic whaling grounds. The whales have gone, but traces of the hunt and the hunters were found in 1947 by the Oxford Univ. expedition on every lonely beach. The earliest hist. of J. M. I. is lost even to the Norsemen's legends, but it is agreed that it was discovered long before the whalers made it their summer home. A little over 2 cents. ago mariners from various nations 'discovered' J. M. I. One of the first of these was the Dutchman Jan Mayen, who landed on the is. in 1614 and whose name it now bears. It was probably discovered first by Henry Hudson in 1607, though others besides Jan Maren since his time have claimed to have discovered it. Fr. whalers called it the Île de Richelieu; in the early days of their whale-hunting the Dutch seem to have named it St Maurice, while their greatest fishing rivals, the English, called it Trinity, or Sir Thomas Smith's, Is. The diaries of early voyagers, however, all comment on the stark barrenness of J. M. I., including that of Robert Fotherby, the Eng. captain who visited the is. in 1615, and reported that in the lowlands 'all the stones are like unto a smith's sinners both in colour and forme, the sand is

generally mixed with a corne like amber.' This 'amber' is formed of pretty yellow-green olivine crystals which shine from the black laval sand of the beaches. The flora of lichens and mosses clings precariously to the crumbling lava. The sea at times is covered with fulmars, petrels, kittiwakes, little auks, guillemots, and puffins. The is. is uninhabited except for the personnel of a meteorological station maintained by the Norwegian Gov. In damp places under the cliffs vegetation is lush and varied, comprising such familiar things as dandelions, bilberries, anemones, and flowering saxifrage. But at altitudes of 7000 ft and 5000 ft above the snow-line may be found mosses and orange lichens projecting through the snow. See *Geographical Journal*, vol. lxi, No. 3, 1922; Scott Russell, *Mountain Prospect*, 1946; 'Oxford Goes Exploring,' by A. J. Marshall, leader of the Oxford Univ. Expedition, in *The Times*, 24-5 Nov. 1947.

Jan of Mabuse, see MABUSE.

Janáček, Leoš (1854-1928), Czech composer, b. Hukvaldy, Moravia, son of a vil. schoolmaster. Was a choir-boy at Brno, and later choir-master in a monastery. Studied in Prague and Leipzig; settled in Brno as conductor and composer. Produced a number of operas of which the most widely known is *Jenufa* (*Her Foster Daughter*), 1903, a drama of Moravian peasant life. *Katya Kabanova*, 1921, is based on Ostrovsky's famous Russian play. *The Storm*. His other prin. operas are *Mr Brouček's Excursions*, 1917, consisting of 2 fantastic dreams within a realistic framework; *The Adventures of the Cunning Vixen*, 1923, many of the characters of which are animals, with a hint of underlying symbolism; *The Makropoulos Affair*, 1925, based on a well-known play by Capek; and *From the House of the Dead*, 1928, which adapts for the operatic stage episodes from Dostoevsky's reminiscences of his prison life in Siberia. He also composed church music, including the remarkable *Glago-lithic Mass*, a vast number of choruses and part-songs too intimately wedded to the Slovak or Czech words to be easily performable outside their own country, some fascinatingly original orchestral and chamber music, piano works and songs (e.g. the cycle *Diary of One Who Vanished*), etc. J.'s music, like that of Berlioz or Sibelius or Nielsen, is quite unlike that of any other composer, not only because it is intensely national, but also because it has very striking personal characteristics. See studies by Max Brod (Ger.), 1925, and Daniel Muller (Fr.), 1930 (there is a large literature in Czech).

Janda, La, Sp. lake in the prov. of Cádiz. It is believed that on its banks took place the decisive battle of 711 in which Roderic (q.v.), the last Visigothic King of Spain, was defeated by the Moors under Tarik (see SPAIN, History).

Jane, Frederik T. (1870-1916), Brit. naval officer and founder and first editor of the annuals *Jane's Fighting Ships* (from 1898), an authoritative description of the

world's navies, and *All the World's Aircraft* (from 1910). Educ. at Exeter school. Naval correspondent for the *Engineer*, *Scientific American*, and *Standard*. Other pubs. include *Blake of the 'Rattlesnake'*, 1895, *The Port Guard Ship*, 1899, *The Torpedo in Peace and War*, 1898, *The Jane Naval War Game*, 1898, and other works on the game, which he invented, *Heretics of Sea Power*, 1906, and *The British Battle Fleet*, 1912.

Jane Grey, Lady, see GREY, LADY JANE.

Jane Seymour, Lady, see SEYMOUR.

Janeiro, Rio de, see RIO DE JANEIRO.

Janesville, city, cap. of Rock co., Wisconsin, U.S.A., on the Rock R. about 60 m. SW. of Milwaukee, in tobacco-growing, dairying area. It manufs. automobiles, fountain-pens, and textiles. Wisconsin School for the Blind is here. Pop. 24,900.

Janet, Paul (1823-99), Fr. philosopher, b. Paris. He was prof. of philosophy in Strasburg Univ. in 1848 and in 1864 became prof. at the Sorbonne, and a member of the Academy of Moral and Political Sciences, receiving prizes from this institution in 1855 and 1858 for *La Famille and Histoire de la Philosophie dans l'antiquité et dans les temps modernes*. He also wrote *Les Causes finales*, which has been trans., *Histoire de la philosophie, Philosophie de la Révolution Française, and Théorie de la morale*. He was a lucid if not original writer, and in philosophy was a follower of Cousin.

Janet, Pierre Marie Félix (1859-1947), Fr. psychologist, b. Paris, where he studied psychology and graduated 1882. After teaching this subject he turned in 1889 to medicine, took his M.D. Paris in 1892, and worked under Charcot at the Salpêtrière and then practised as a neurologist and psychiatrist. In 1903 he was appointed prof. of psychology at the Collège de France. J. made important observations on hysteria and hypnotism, and was first to describe psychasthenia; his descriptions of the clinical manifestations of the psychoneuroses surpass in extent and accuracy anything to be found elsewhere. Among his numerous works are *L'Automatisme Psychologique*, 1889, *État Mental des Hystériques*, 1893, *Les Obsessions et la Psychasthénie*, 1903, and *Les Médications Psychologiques*, 1925-8.

Janeway, James, see CHILDREN'S BOOKS.

Janiculum, or Mons Aureus, hill on the W. bank of the Tiber (q.v.) opposite the old city of Rome (q.v.). During the reign of Augustus (q.v.) it came within the city limits. Height 300 ft.

Janin, Jules Gabriel (1804-74), Fr. critic and novelist, b. St Etienne. He made his reputation by his dramatic criticisms in the *Journal des Débats*. His *L'Âne mort et la Femme guillotinée*, 1829, was a clever parody of Victor Hugo. This was followed in 1831 by *Barnave* (his best novel), which gives a striking picture of the first Fr. Revolution. A collection of his best articles appeared as *Histoire de la littérature dramatique* (6 vols.), 1853-8. He was elected to the Academy in 1870. See A. Piédaguel, *Jules Janin* (3rd ed.), 1883.

Janina, Yannina, or Yanina, cap. of the dept of Janina, Greece, is situated on the shore of Lake J., about 50 m. from the sea coast opposite the is. of Corfu. It is the seat of a Gk archbishop, and po. many mosques and churches. Gold and silver embroidery are still produced in the city; it was the stronghold of Ali Pasha, the tyrant of Epirus, from 1788 to 1822; was besieged and captured by the Greeks during the Balkan war, 1913. Pop. (dept) 154,000; (tn) 32,300.

Janizaries, renowned force of Turkish soldiery estab. in the 14th cent. Down to about 1600 they were composed of forced levies of Christian youths, to whom were added young captives taken in war. Trained under a discipline both military and monastic, they were taught to look upon the corps as their only home and for cents. they were the flower of the Ottoman troops. Receiving no pay except during wartime, they were allowed to work at trades and to act as police. They frequently mutinied, and at length in 1826 a final revolt at Constantinople resulted in their annihilation.

Jannequin, Clément (c. 1475-c. 1560), Fr. composer, probably a pupil of Josquin des Prés (q.v.), but almost nothing is known of his life. He was a great master of the 16th-cent. Fr. polyphonic *chanson* and wrote realistic pieces imitating, by purely vocal means, the sounds of birds, the chase, the battlefield, etc., see also FRENCH MUSIC.

Jannes and Jambres, legendary names of the 2 wizards who 'withstood Moses' (Exod. vii. 11; 2 Tim. iii. 8); in some traditions they were the 'two youths' (R.V. 'servants') who went with Balaam to curse Israel (Targum i.: Num. xxii. 22). They were the subject of many legends, and a book, *Poenitentia Jannis et Mambre*, is referred to among the apocryphal books by Origen. See Söhrer, *Gesch.* iii. 292 et seq. (1886-90).

Jannings, Emil (1887-1950), Ger. stage and film actor, b. Rorschach, Switzerland, of Ger.-Amer. parents. He appeared with Max Reinhardt's company in Berlin. His first appearance as a film actor was in an Ernst Lubitsch film (1916), and he also worked for the Amer. screen (1925-9). He returned to the stage in 1932. Outstanding films included *The Last Laugh*, *The Way of all Flesh*, and *The Blue Angel*.

Jansen, Cornelius (1585-1638), Dutch cleric, founder of the school of theology known as Jansenism. He studied at Louvain and Paris, returning to Louvain as a prof. in 1617, where he lectured on Scripture for nearly 20 years, and led the univ. in a bitter controversy with the Jesuits. In 1626 he led a deputation to Spain to plead the cause of the univ. against the Jesuits, and succeeded in getting their authorisation to teach the humanities and philosophy withdrawn by the Court of Madrid (1626). Meanwhile he was working on his great theological treatise, the *Augustinus*, designed to restore the teachings of St Augustine to their true place in Christian doctrine. By recommendation of Philip IV he was

made Bishop of Ypres in 1636, but d. in an epidemic in 1638. He had never had a conflict with Rome, and in his last will and testament declared that he d. 'an obedient son to that church in which I have lived to my dying hour.' Two years after his death the *Augustinus* was pub., and immediately showed that J. had favoured the opinions of Baius, an earlier chancellor of Louvain Univ. who had taught a doctrine of grace which resembled Calvinism. The *Augustinus* had an immense success, and was defended by the friends of J., headed by Arnauld (q.v.). See JANSENISM.



CORNELIUS JANSEN

**Jansenism.** After the death of Jansen in 1638 most of his works and letters were pub., especially the *Augustinus* in 3 vols. in 1640. Jansen had been strongly anti-Protestant, but some of his tenets resembled Calvinism, so that 5 of them were condemned by the Vatican in 1649. Some of Jansen's friends, especially the fathers of Port Royal, headed by Arnauld, defended these propositions, and though in 1653 they were declared heretical, Arnauld would not give way. In 1656 he was degraded and exiled, and in 1661 his adherents were ordered to sign a renunciation of his teaching on pain of imprisonment. A truce was estab. in 1669, and for 30 years the Jansenists, protected by some powerful friends, maintained a precarious footing in France. In 1703 Louis XIV, at Jesuit instigation, began a fierce attack on J., and in 1713 Clement XII in the bull *Unigenitus*, condemned the *Reflexions* of Quesnel, Arnauld's successor. This decree had a mixed reception in France, but the Catholic party proved the stronger. The leading Jansenists withdrew to Holland, where they formed a church. Jansen had intended to restore the teaching of Augustine to what he conceived to be its proper place in the Church, and to prove how it had been perverted by the schoolmen. In vol. i of the *Augustinus* he defines the distinctive tenets of the Pelagians and semi-Pelagians. Vol. ii assigns limits to human reason, and adjusts the claims of authority with particular reference to

Augustine. Reversing the principle of the schoolmen, J. affirmed that philosophy and theology were entirely unconnected. Original sin is not mere imputation of sin; it is a depravation of nature and concupiscence is a taint of sin in body and soul. The third vol. treats of the Grace of Christ, and concludes with an attempt to identify the teachings of the Jesuit Molina with semi-Pelagianism. The fear of God and of eternal punishment cannot remove evil from the heart; 'fear is a self-growth of the feeble soul, there is nothing of God in it,' and, later in the same context, Jansen attacks the scholastic notion of attrition. The fundamental opposition of J.'s teaching to Catholicism lay in his disregarding the distinction between the natural and supernatural order. For him supernatural gifts were not gratuitous but simply man's due. In moral questions the Jansenists called the Jesuits 'laxist,' while the Jesuits called their opponents 'rigorist.' In 1653 Innocent X declared various propositions of Jansen either heretical and irreligious, or injurious to God. Anthony Arnauld (q.v.), against the Pope, argued that though the views as stated by the Pope were censurable, they were not to be found in Jansen's work. This reply provoked a long-drawn dispute over papal infallibility, which incidentally Jansen had defended in a doctoral thesis in 1619. Among the most ardent supporters of J. in France were the nuns of the abbey of Port Royal in the Fields, whose abbess, known later as Maria Angelica de S. Magdalena, was the sister of Arnauld. One of the most famous defenders of J. was Pascal, author of the *Lettres Provinciales*, in which the casuistry of certain Jesuits is brilliantly ridiculed. Louis XIV, at Jesuit instigation, had the convent demolished. Further persecution followed the issue of the bull *Unigenitus*, condemning *Moral Observations on the New Testament* by the Jansenist, Pasquier Quesnel (q.v.). But this merely provoked fanaticism. Marvellous cures and other miracles were attributed to Jansenists, and sects arose called Convulsionaries and Flagellants. At the death of Louis XIV, J. showed a bold and defiant front. The Sorbonne, in his reign Molinist, became Jansenist in the regency, and by the middle of the cent. J. was influential in the Fr. Parliament, and its principles openly professed by men of high position. The Fr. Revolution weakened its hold, but did not extinguish it altogether, and its influence was felt in the Fr. Church throughout the 19th cent. To-day as a separate Church they exist mainly in Holland. See G. Gerberon, *Histoire de Jansenisme*, 1700; *Dictionary of Sects, Heresies, Ecclesiastical Parties*, 1874; E. Pasquier, *Le Jansenisme étude doctrinale d'après les sources*, 1909; N. Abercrombie, *The Origins of Jansenism*, 1936; J. Orsibal, *Les Origines du Jansenisme*, 1947.

Janssen, Cornelius (c. 1590-1665), Dutch painter, b. probably at Amsterdam. He came to England in 1618, and was taken into the service of James I, whose portrait he painted sev. times. His chief pictures



are a portrait of Sir George Villiers, father of the famous Duke of Buckingham; portrait of Charles I (in Chatsworth House); and Wm Harvey (in the Royal College of Physicians).

**Janssen, Peter Johann Theodor** (1844-1908), Ger. historical and portrait painter, b. Düsseldorf. He was awarded the gold medal in Berlin in 1893, and in 1895 became director of the academy at Düsseldorf. His chief work is 'Walther Dodge and the Peasants of Berg before the Battle of Warringen, 1288.'

**Janssen, Pierre Jules César** (1824-1907), Fr. astronomer, b. Paris. He made a study of mathematics, physics, and chem., and in 1857 went to Peru in order to determine the magnetic equator. He attained notoriety by his use of a high dispersive power spectroscope to see the lines of solar prominences in daylight, without waiting for an eclipse. He shared this honour with Lockyer (q.v.). In 1875 he was appointed director of the new astrophysical observatory at Meudon, and interested himself in solar photography, his results being pub. in *Atlas de photographies solaires*, 1904.

**Janssens, Victor Honorius** (1664-1739), Flem. painter, b. Brussels. He studied in Rome, was a painter to the Duke of Holstein for some years, and later, in 1718, became painter to the emperor in Vienna. He was noted for historical pictures such as the 'Dido ordering the building of Carthage.'

**Janssens van Nuyssen, Abraham** (c. 1567-1632), Flem. painter, pupil of Snellinck, who worked in the style of Rubens. He was a master of chiaroscuro, in torchlight and similar effects influenced by Caravaggio. Among his best works are 'Resurrection of Lazarus,' 'Descent from the Cross,' and 'Ecce Homo' (Ghent), and 'Entombment' (Antwerp).

**Jansson, Tove**, contemporary Finnish artist. Her cartoons on the *Moomin* family are popular in England.

**Janthina**, see LANTHINA.

**Januarius, St.**, or **San Gennaro** (d. AD 304), martyr and patron of Naples. Legend relates that he was Bishop of Benevento and suffered under Diocletian. His body is preserved at Naples, and 2 phials which are said to contain his blood are shown when the phenomenon of the 'liquefaction of the blood' occurs. No natural explanation of this has ever been proved. His feast is on 19 Sept.

**January**, first month of the modern year, containing 31 days. The name is derived from the Rom. two-faced god 'Janus,' to whom it was dedicated. The Angles and Saxons called the month 'Wulfmonath,' because cold and hunger induced the wolves to enter the vills. at that season. It was formally adopted by all European nations as the first month of the year in the 18th cent., though 1 Jan. had been regarded as the first day of the year in Scotland since 1600.

**Janus**, one of the oldest Lat. gods. His name may be derived from the same root as *janua*, a gate, or be the masculine form of Diana (Jana). He was 'the spirit of

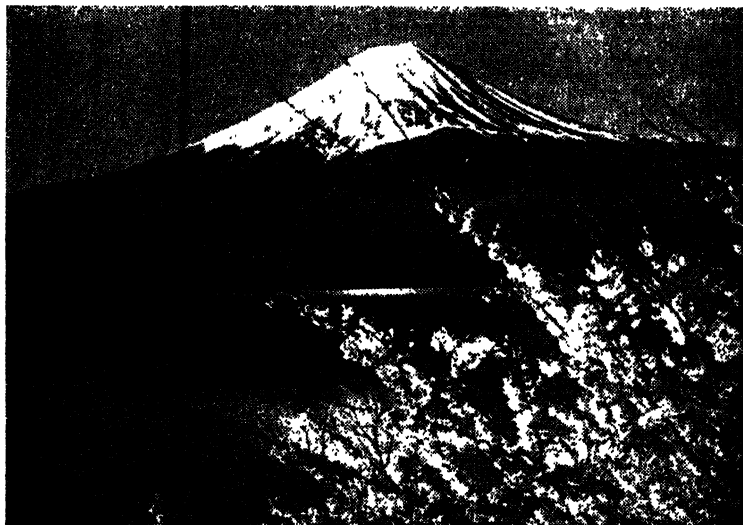
opening,' and is represented with 2 faces which look both ways. He was invoked at the beginning of any enterprise before the other gods, and as the patron of all 'openings,' whether concrete (e.g. the gates of public or private buildings) or abstract (e.g. the beginning of the day, month, or year); the fifth month of the year was dedicated to him. His only priest was the *Rex sacrorum*, the king as religious head of the state, but every head of a household was regarded as his 'flamen.' His worship was of immemorial antiquity, and there was an archway (erroneously called a temple) supposed to have been built by Numa which was always open in times of war and shut in times of peace. See Warde Fowler, *Roman Festivals*, 1908, and *Religious Experience of the Roman People*, 1911.

**Japan**, or **Nippon**, long chain of is. off the E. coast of Asia, divided from the continent by the Jap. Sea and washed by the Pacific Ocean on its E. shores, lying between long. 156° 31' E. and 124° W., and between lat. 30° 20' and 45° 30' N. The former Jap. Empire had a total area of 263,051 sq. m. and a pop. of 105,226,101 (census of 1 Oct. 1940). J. now consists only of the is. which were formerly known as 'J. Proper' by way of distinguishing between the homeland and the whole empire, including Formosa, Korea, leased and mandated ter., all of which have now been lost. The homeland, or 'J. Proper,' consists of Honshu (or Mainland), 88,976 sq. m.; Hokkaido (which before 1945 included the Kurile Is. as the prov. of Chishima, 30,332 sq. m.; Kyushu, 16,247; Shikoku, 7,248; and Ryukyu or Luchu Is., 920 sq. m., with a total pop. of 89,280,000 (1955). After J.'s defeat in the Second World War she was forced to surrender her other seized lands, including Manchuria (Manchukuo), with an area of 404,428 sq. m. and a pop. of 43,500,000; the Kuriles, or the 'Myriad Isles'; Formosa, or Taiwan, ceded to J. by China in 1895; the peninsula of Korea, or Chosen (84,102 sq. m.), annexed by J. in 1910; the S. half of Sakhalin Is., called Karafuto by the Japanese (area 13,154 sq. m.) and ceded by Russia in 1905; and the Marshall, Caroline, Ladrone (excepting Guam), and Pelew Is., former Ger. possessions in the N. Pacific, which were placed under Jap. mandate under the treaty of Versailles (1919) and were renamed Nanpo, comprising a total area of 830 sq. m. with a pop. (1937) of 121,000. The coastline of J., which exceeds 17,000 m., is long in proportion to the area, with the exception of Honshu, and is deeply indented, especially on the E. shores. There are only 2 large bays on the E. coast, those of Sendai and Matsushima, but there are hundreds of smaller indentations. Further S. lie Tokyo Bay, the Gulf of Sagami, and the Bays of Suruga and Ise. The famous inland sea that separates Shikoku from Kyushu is one of the loveliest sheets of water in the world. It measures about 1325 sq. m., and is studded with beautiful little is. Three narrow waterways connect it with the Pacific Ocean and the Sea

of J.; on the W. Shimonoseki Strait, on the S. Bungo Strait, and on the N. Kii Strait. On the W. shore of Kyushu lie 3 promontories, Nomo, Shimabara, and Nishisonoki, enclosing a bay on whose shores stand Nagasaki and the (pre-1945) naval port of Sasebo. On the S. of Kyushu lie the Bay of Kagoshima, and N. the inlet of Wakasa-wan carrying the harbour of Isuruka, and the (pre-1945) naval port of Maizuru.

The is. are traversed from end to end by ranges of mts, many being volcanic, some few of which are still active. The most

Mt Aso in Kyushu is the largest *caldera* (volcanic crater) in the world, and Mt Asama ranks after Aso as the largest active volcano in J. The mt scenery is not rugged, but soft and beautiful; the vegetation of the hillsides is exceedingly brilliant; the highest peaks do not carry snow all the year round. One famous mt on the boundary of Kagoshimaken, known as Kirishimayama (5538 ft), is especially sacred to the Japanese because the god Ninigi descended on its E. peak and introduced the first Jap. emperor, Jimmu. Many of the volcanoes have after long



E.N.A.

FUJI-SAN OR MOUNT FUJI

famous mt, both for its height (12,385 ft) and for its singular beauty of form and setting, is Fuji-san or Mt Fuji; it lies a short distance from the great port of Yokohama in Honshu; the slopes are cultivated as far up as 1500 ft., then moorland and forest stretch up to the summit, which is crowned with ashes and scoriae. The volcano appears to be extinct, having been dormant since 1707, but the hist. of other volcanoes forbids the people to trust wholly its present peaceful appearance. It possesses a wonderfully perfect shape, and Jap. artists have made its picture familiar by constant reproductions; 5 lakes lie at the N. foot of Fuji-san and add greatly to the beauty of the scenery. Among the highest mts after the Fuji range are those in the provs. of Hida and Etchu, 6 of these rise to 9000 ft; they are known as the Jap. Alps. The Nikko Mts are another range famous for their beautiful vegetation and countless waterfalls.

intervals of silence suddenly become active such as Bandai-san (6037 ft), which burst into terrible activity in 1888 and destroyed utterly 7 prosperous vils. and hundreds of people, or Asamayama, 90 m. SW. of Tokyo, which was in eruption in May 1942, and caused widespread damage. The volcanic character of the country has given J. one great gift in the shape of numberless hot springs, widely reputed for their medicinal value. Though very mountainous the country has sev. extensive plains; that of Kanto, which is very fertile, holds the cap., Tokyo, and the tn of Yokohama. None of the rivs. are of any considerable size, though probably no country is so well watered by a network of streams and lakes. The longest riv. is the Shinano (230 m.), and 2 of the most important are the Tone (200 m.) in Kanto and the Ishikari (228 m.) in Hokkaido. The Shinano waters the plain of Echigo, flows into the sea of J., and is navigable

for about 90 m. Most of the rivs. are short, rapid, and shallow, gaining depth when the snows are melting; they are freely used for electric purposes and whenever possible for transport. The lakes of J. are numerous. They are very beautiful, the largest being Biwa in the centre of Honshu, about 180 m. in circumference; it possesses 8 views of wonderful beauty and is much loved by the Japanese. Lake Suwa in Naganoken is also celebrated for its beauty. The 5 lakes at the foot of the slopes of Fuji-san and 1 in Mt Hakone are popular resorts for both foreigners and Japanese.

The geological basis of the is. consists of granite, syenite, and diorite, granite everywhere predominating; the granite is not always pure, e.g. in the valleys of Nikko a granite-porphry is found with crystals, felspar, and quartz, etc. The soil is usually workable and prolific, and along the banks of the rivs. fertile and well adapted for the cultivation of rice. The climate necessarily varies in different parts of the empire owing to the long extension of the is. Its general characteristics are heat and moisture through the short, bright summer, followed by short, cold, fine winters. The rainy season occurs in the early summer in most parts of J., and is only exceeded by the winter snowfall on the J. Sea coast. In the more mountainous dists. of the is. the snowfall during the winter is very deep. J. is rather a wet country, and although the brilliant sunshine assists in making a healthy climate in spring and autumn, bad fogs are prevalent even during the summer. The typhoon, or great wind, is a terrible visitor, especially during Sept. The equivalent of nearly £3,000,000 sterling has been expended in 1 year for damages caused by the typhoon, including the destruction of ships, vils., roads, embankments, and bridges, etc. The is. also suffer from frequent earthquakes, sometimes accompanied by tidal waves which claim thousands of human victims. In 1923 a terrible earthquake occurred in which nearly 150,000 people were killed in Tokyo and Yokohama, and the damage done was estimated to cost about 5 billion yen. This was followed on 24 May 1925 by an earthquake at Kobe in which many were killed, and shocks were also experienced in 1929 (see under EARTHQUAKE). An earthquake which, accompanied by a 7-ft tidal wave, struck central J. and the is. of Shikoku on 21 Dec. 1946, was almost as severe as the earthquake of 1923, but the casualties were only 680 dead, and 4819 houses were destroyed.

FLORA. J. has a great and beautiful variety of vegetation, the colours of the foliage in spring and autumn being unsurpassed in richness and range of shades. Many Eng. gardens have gained in beauty by the brilliantly coloured shrubs brought from J. Oaks, laurels, conifers, walnuts, birch, chestnut, camphor-trees, and especially the weeping willow and maple, grow freely, while everywhere the bamboo is seen growing in beautiful clumps. Among the queens of the flowering trees

the plum must come first, so graceful in its growth and in its profusion of beautiful blossom and so wonderful in its richly coloured foliage. The cherry-tree is even more beloved by the natives, who stand among the world's greatest and most artistic gardeners. The peach-tree also blooms with amazing profusion. Their fruits are also highly appreciated, especially plums, which are salted and eaten in every family. The Jap. pyrus, or pear-tree, and the malus, or apple-tree, have become familiar to Eng. gardeners, and are much prized for their gay colouring and cloud of blossoms; among the apple varieties the *Floribunda* is especially hardy and beautiful. The magnolia blooms in great perfection, also the azalea, chrysanthemum, peonies, iris, hydrangea, camellia, gum cistus, etc. We owe many of our most graceful and brightly coloured shrubs and flowers to Jap. gardeners. As a race they love the art of gardening, and at no time is the country devoid of blossoms of some kind. Their landscape and water-gardens are creations of beauty, and the miniature, or model gardens, are an astonishing example of patient care and study. In fascinating little places a perfect tree such as a cedar may be 100 years old, yet dwarfed to attain only a few in. in height, though perfectly complete in its proportions. Lilies grow wild in great variety, and the lotus lily during the summer months covers the lakes and rivs. with its delicate blooms. Ferns are found everywhere in great quantities; there are over 150 different species. The chief fruits are the orange, grape, pear, apple, loquat, peach, raspberry, and persimmon; great quantities of these are exported yearly to U.S.A. and Europe. Vegetables are well cultivated and many curious and palatable roots have been introduced from J. to Europe during recent years.

FAUNA. There are sev. kinds of wild animals. The black and brown bear are found in Hokkaido; the ice bear is an occasional visitor, carried down by the Arctic current. Badgers and foxes are numerous, and were once credited with supernatural powers; monkeys abound all over the is.; there are no rabbits, but hares are plentiful. Wild boars and stags, also antelopes, exist in the mountainous dists.; otters and sea otters are numerous and much valued for their fur. The squirrel and the rat are very common, but there are no mice. The bird life carries a large variety; water fowl is very plentiful; wild geese, ducks, teal, and herons, especially the silver heron beloved by Jap. artists, are seen in large numbers, also the kite, falcon, and sparrow-hawk. Among the game birds the commonest are the ptarmigan, snipe, plover, quail, woodcock, and pheasant; there are 2 varieties of the latter, one known as the copper pheasant, being remarkable for its beautiful plumage. Eagles have been found but recently in small quantities. The crane is a sacred bird, being honoured as an emblem of longevity. Among the smaller birds the *Uguisu* comes first, a species of nightingale gifted with a very

beautiful song. The cuckoo, lark, hoopoe, bluebird, starling, wren, kingfisher, and various finches, etc., are all inhab. of the Is. Among the 30 species of reptiles are a very few turtles (highly valued when caught), many tortoises, 10 varieties of snakes, only one being venomous; lizards, frogs, toads, and newts are plentiful, and the giant salamander, which has been said to attain a length of 2 ft. Fish forms a very large part of the food of the Japanese; it is wonderfully plentiful both in the sea and the rivs. and lakes. Among the chief are the bream, perch, mullet, mackerel, haddock, and salmon. The gold carp and the goldfish, so prized for their beauty, are very numerous. J. is rich in beautiful insect life, the golden and the jewel beetle, and the many kinds of brilliant butterflies of tropical beauty; there are 7 kinds of silk moths, and from the cocoon of the moth *Caligula japonica* fishing lines are manuf. The singing cricket and the cicada are common everywhere, also beautiful dragon-flies. Spiders abound but are small in size. In the lakes and rivs. live many kinds of fresh-water crabs and myriads of shrimps which are largely used for food.

**POPULATION.** In Oct. 1955 the pop. was 89,280,000, excluding the lost teris. There are 6 tns with a pop. of over 900,000: the cap., Tokyo (formerly Yedo), had in 1955 a pop. of 8,037,000; Osaka (Honshu), 2,547,000 in 1940; Kyoto (Honshu, anct cap.), 1,204,000; Nagoya (Honshu), 1,336,000; Yokohama (Honshu), 1,143,000; Kobe (Honshu), 879,000. Other important cities with 1955 pop. are: Fukuoka (Kyushu), 544,000; Yawata (Kyushu), 286,000; Kure (Honshu), 199,000; Sendai (Honshu), 376,000; Hakodate (Hokkaido), 243,000; Kago-shima (Kyushu), 274,000; Kokura (Kyushu), 242,000; Otaru (Hokkaido), 188,000; Niigata (Honshu), 202,000; Shimonoseki (Honshu), 231,000; Moji (Kyushu), 145,000; there are 71 other tns with a pop. of over 100,000. Yokohama and Kobe are the chief ports and centres of foreign trade. The majority of Japanese are believed to be of Mongoloid origin; the minority are mixtures of Mongoloids with Ainu, or with genetic strains from Sk. Asia and even Europe. The Ainu (q.v.) are probably the native race of the N. Honshu and Hokkaido. The Japanese of the present day do not differ physically very much from the Korean and Chinese. The main part of the race is short of stature and very muscular, but many types are distinguishable, the most important being an element of the Malay; then follow the Manchu-Korean type, the Mongol, and lastly the Ainu. In the S. the people are more refined in appearance and the women (according to W. ideas) are frequently beautiful, while further N. the tendency to prominent cheekbones and flat noses becomes more obvious. They are straight-haired and usually very dark. As a race they are an exceedingly happy, lighthearted people. Children occupy an important place in every family; J. has been called rightly 'the

paradise of children.' The present condition of women is based upon the principle of equality of sexes. As a wife and mother, the Jap. woman enjoys a position of freedom and respect. If single she may, and often does, adopt children and becomes 'house-head' of her legal family. The general character of the Jap. women is especially worthy of mention; they are unselfish, modest, kind-hearted, and patient, obedient as daughters, faithful as wives, and devoted as mothers. Both men and women are by nature frugal and industrious and share in a passionate love of their country.

**RELIGION.** There is absolute religious freedom in J. The original religion of J. is Shinto (the divine way), a mixture of nature worship and ancestor worship. It regards human people as naturally virtuous, being descended from the gods, and assumes that an individual's conscience is his true guide. The dead are ghosts, inhabiting a world of darkness with the power of bringing sorrow or joy into the lives of the living. There are numerous gods and goddesses, with sev. beautiful and charming legends attached to them. The prin. divinity is Amaterasu, the goddess of the sun. Her shrine at Ise is visited by crowds of pilgrims. There appears to be no definite idea of what kind of life continues after death, but the cult expects natural purity of life without promises of reward. Buddhism reached J. (AD 552) through Korea, and the 2 religions became so intermixed it was difficult to disentangle them. Buddhism, however, gradually absorbed the greater part of Shinto, though divided into various sects. In 1940 there were 3081 Christian preachers in J., and 2104 Christian churches belonging to various denominations. The Rom. Catholic Church was recognised in 1941. Until the outbreak of war in that year there were 7 Brit. and Jap., and 3 Amer. 'Protestant Episcopal' bishops. The Japanese usually adapt whatever creed they follow to their own requirements.

**INDUSTRIES.** The industrial progress of the country made rapid strides up to the outbreak of war (1941). Labour is always cheap and plentiful. Machinery had been largely introduced. The prin. manufs. are foodstuffs, silk, cotton and chemical textiles, chemicals, metal goods and machinery, paper, glass, furniture, toys, and rubber goods. Sugar-refining was a growing industry before 1941, but the more anct industries such as matting, lacquer, and porcelain remain unchanged. The country does not produce enough coal for its own use, but reaching 42,423,000 metric tons in 1935. The production of iron is insufficient and was supplemented from China and Korea before the war. Gold is found and has been worked, but not in great quantities. In 1955 the output was 7,487,000 grammes. Copper occurs in larger quantities and is a fairly valuable asset; the output in 1955 was 72,900,000 kilogrammes. The zinc output in 1955 was 910,000 kilogrammes; iron pyrites, 2,736,000 metric tons:

lead, 37,100,000 kilogrammes; pig-iron, 5,316,000 metric tons; and steel, 9,400,000 metric tons. Steel production is sufficient for Jap. industry, and export reached 1,293,000 tons in 1952, and 1,307,000 tons in 1955, mainly for Britain and India. Seventy per cent of the whole area is covered with forest. The forest area in 1951 was 53,900,000 ac., of which 17,988,000 ac. belonged to the State and some 7,168,000 ac. to local govs. From these forests a quantity of



Japanese Embassy

RING SPINNING FRAME AT HAMAMATSU MILL, TOYO SPINNING CO.

good timber is obtained. Large groves of bamboo furnish material for building, ornamental work, and tools, etc. The forests contain also *Cryptomeria japonica*, *Zelkova keaki*, *Pinus massoniana*, and *Paulownia imperialis*, which is used for fancy boxes, etc. Another smaller industry furnished by the forests is the cultivation of mushrooms; these are dried and exported to China and India. The fishing industry is of very great importance. The value of it to the empire annually naturally varies, but in 1955 reached 4,875,000 tons. The industry of salt-refining is also of importance.

**AGRICULTURE.** Over 40 per cent of the pop. are engaged in agriculture; it is J.'s most important industry but, owing to the mountainous nature of the country, not more than one-sixth of its area is available

for cultivation. Small holdings are the general rule, rarely exceeding 3 ac., but the break-up of the large estates by the Americans in 1945-6 may have the effect of increasing the acreage of small holdings. The soil was not particularly fertile, and hard work and hard living have made the rice fields what they are. Rice is the chief crop; it forms the prin. food of the people, and is also the basis of the national drink, *sake*. It is a summer crop, harvested in Sept.; the fields are flooded while grain is young and then drained. The following are the chief products, the area under cultivation, and the production, for 1955: rice, 3,082,000 hectares (391,989,000 bushels); wheat, 661,000 hectares (531,000,000 bushels); barley, 434,000 hectares (521,000,000 bushels); rye, 560,000 hectares (450,000,000 bushels); tobacco, 75,500 hectares (150,000 metric tons); and tea, 48,400 hectares (73,000 metric tons). Other important crops are millet, small red beans, buckwheat, rape seed, potato, sweet potatoes, indigo, hemp, sugar-cane, and peppermint, etc. The paper mulberry is extensively grown, its fibrous tissue being the chief material used for Jap. paper. Barley is grown with particular care as it provides the material for straw-platts, which is an important manuf. Stock-breeding is not extensive, pastureland being scarce. The growing liking for beef among the people before 1941 diminished the indigenous cattle, but various foreign breeds were imported. Sheep and pigs were on the increase but the natives prefer beef. Goats are kept for their milk. The rearing of silkworms is a very important asset to the small farmer. Jap. silk has long been famous. The chief silk-producing prefectures are Nagano, Gumma, Yamanashi, Fukushima, Aichi, and Saitama; thousands of families are engaged in its production and manuf. In 1955 the total number of cocoons obtained was 112,000,000 tons. The total raw silk produced in 1955 was 4,387,000 lb. The production of rayon in 1955 was 195,352,000 lb. and exports of silk was 11,210,000 lb. and rayon was 18,046,000 lb.

**RAILWAYS AND COMMUNICATIONS.** Railways made rapid strides before the Second World War. There are now 214,000 m. of railroad, chiefly owned by the State. The first line ran between Yokohama and Tokyo, opened in 1872. After the war with Russia the State nationalised the railways in 1907, and the growth and perfection of the system were still in evolution up to the war. Comprehensive plans were also made for the electrification of the railways and more than one-tenth has been electrified. The postal service is modelled on W. lines, and J. became a member of the international mail service in 1877. In 1955 4,520,000,000 letters, postcards, newspapers, and periodicals were sent and 81,000,000 parcels. There were 15,522 telegraph and post offices in 1955. Telegraphic communication commenced in 1867. In 1884 J. joined the telegraphic union, and in 1955 14,050,000 telegrams were sent. The telephone was

adopted in 1877, a year after it was invented. Before the war there were 981,936 subscribers and 83,641 line m. In 1955 there were 2,192,500 subscribers and 3,123,400 telephones. Roads in J. are divided into 3 classes: state roads, prefectural roads, and vil. roads. They are generally well kept, and the gov. gave an ann. grant for assisting their upkeep and improvement. The first electric tramway was constructed in Kyoto in 1895. Before the war there were sev. electric railways and tramways running in the larger cities. Drainage improved rapidly, the usual W. methods of street scavenging being employed in all tns and cities. Cremation is encouraged with much success, and crematoria have been estab. in Tokyo, Osaka, and many other tns.

**POST-WAR RECONSTRUCTION.** In Sept. 1956 the National Land Bureau of the Ministry of the Interior pub. the first Five-Year Plan of rapid reconstruction of J.'s shattered economy. The plan envisaged the redistribution within J.'s reduced ter. of a pop. estimated to reach 80 million by 1950, the greater production of foodstuffs, the reorganisation and redistribution of industries, the reduction in the number of unemployed, and the restoration of devastated cities. To support the pop. 87 million koku (1 koku equals about 5 bushels) of rice would be required, so that the production of rice was to be increased to 70 million koku by 1950, leaving 17,000,000 to be imported. Actually J. produced 64,338,000 koku of rice in 1950 and 79,030,000 koku in 1955. The pop., however, increased to 83,199,000 in 1950 and 89,275,000 in 1955, and therefore J. still needs to import a large quantity of rice. The index of industrial productivity (average of 1934-6 = 100) was 63.2 in 1945, and 88.0 in 1950, but since then has risen quickly to reach 161.2 in 1953 and 207.1 in 1955. In April 1956 it was 219.4. Before the war J.'s trade was most vigorous during 1935-40, with exports exceeding imports by 658 million yen in 1939. Fixing the amounts in 1935 as 100, and modifying the later amounts according to index number of prices, export and import fell down to 4.4 and 11 respectively in 1945, and slowly recovered to 48 and 57 in 1950, and 83.5 and 104.4 in 1955, that is, export of 723,805 million yen and import of 889,715 million yen, showing an excess of imports of 165,910 million yen (460.83 million dollars).

In December 1955 the gov. issued the new Five-Year Plan to achieve a self-supporting economy and to improve employment. To do this the gov. decided to (a) increase exports to the dollar area; (b) encourage smaller enterprises to provide fuller employment; (c) increase public works and social welfare; (d) expand heavy industries. The aims of this plan were unexpectedly attained within only one year, mainly through record-breaking crops and rapid expansion of exports in 1955-6. During 1945-55 national income increased at the rate of 11 per cent a year, output of mining and manufacturing industry 22 per cent a year, and

exports 46 per cent a year, thus making the ann. income *per capita* 13 per cent higher, industrial output 120.2 per cent higher than in 1935, and recovering the export to 85 per cent of that in 1935. It is clear from these figures that J.'s export trade is still too small to absorb her industrial output, and eventually to feed her large population. To balance this rapidly increasing production with the expansion of overseas markets is without doubt J.'s greatest problem, because her pop. is still increasing and is estimated to exceed 100 million by 1965.

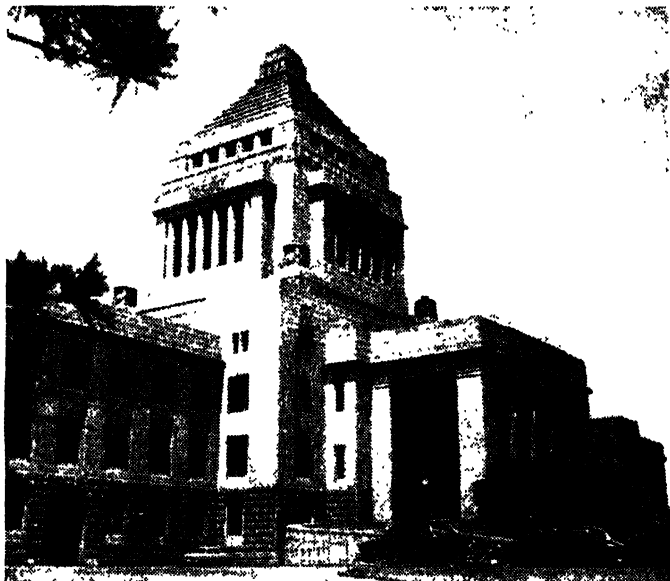
**CONSTITUTION AND GOVERNMENT.** From the 1st cent. BC until 1889, the country was ruled by an absolute monarchy, but in 1889 the emperor, after much study of the gov. of other countries, gave J. its pre-1945 (or 'Meiji') constitution. The emperor, called by foreigners the 'Mikado,' and by his subjects 'Tenno,' then possessed the rights of sovereignty and had executive power. He was assisted by Cabinet ministers chosen by himself. He was also advised on important state matters by a privy council, and exercised legislative power with the consent of the imperial Diet, which consisted of 2 Houses: House of Peers and House of Representatives. The House of Peers consisted of (1) male members of the imperial family of full age, (2) princes and marquises over 30 years of age, (3) counts, viscounts, and barons over 30 years of age, (4) persons over 30 years of age nominated by the emperor for meritorious services and erudition, (5) members of the Imperial Academy of Sciences, and (6) representatives of the highest taxpayers nominated by their own class. General manhood suffrage came into force in 1925, under which, in principle, all male subjects over 25 years of age are electors, and those over 30 years are eligible for election. By a subsequent law, the number of the House of Representatives was fixed at 466. The 'Meiji' constitution was superseded in 1946 by a new draft constitution much more in harmony with the concepts of W. democracy (see below under *History—Japan's new epoch*). Women suffrage had not come into being in J. before the war, but women were taking an increasing interest in social work and politics. Voting is by secret ballot. For local gov., J. is divided into prefectures, which are subdivided into municipalities. Modern jurisdiction has been introduced. There were (1941) 51 prisons and 104 detached prisons. The courts of justice are classed as dist. courts, local courts, courts of appeal, and the court of cassation or supreme court.

**COMMERCE.** Immediately before the Second World War J.'s shipping industry was well on the increase. Her exports grew in bulk annually, having increased fourfold in the last few years preceding 1941. After the war it recovered rapidly, but did not reach the total attained in 1939 (see above under *Post-War Reconstruction*). The chief imports in 1955 were: foodstuffs (25.4 per cent of total imports; rice from SE. Asia, Italy, and

Spain; wheat from U.S.A., Canada, and Australia; sugar from Cuba, raw materials for textiles (24.3 per cent; cotton from Pakistan, U.S.A., and Mexico; wool from Australia), petroleum (9.2 per cent; U.S.A. and Saudi-Arabia), machinery (5.5 per cent; U.S.A. and Britain). The chief exports in 1955 were textiles (37.3 per cent of total exports; silk goods to Canada and U.S.A.; cotton goods to China, Indonesia, Australia, and Saudi-Arabia; rayon and staple-fibre fabrics to the same; chemical fibre fabrics to the

which 72 are state-owned. There are over 12,610,000 children in the primary schools, and the percentage of attendance in compulsory education has always been above 99 per cent for the past 50 years. High schools are also state-aided and prepare for a 4-year course at the univs.

Co-education has been successfully practised since 1947, and 43 per cent of higher secondary school students, and 15 per cent of college students, are girls, numbering 1,180,000 in higher educational institutions. In technical colleges



DIET BUILDING

Japanese Embassy

same), iron, steel, and metal goods (31.5 per cent; to India, U.S.A., and Britain), machinery (12.3 per cent; to Pakistan, SE. Asia, and China), foodstuffs (8.8 per cent), and chemicals (4.7 per cent). The number of sailing ships engaged in trade before the war was 15,686 and the number of mercantile steamers was about 3600, but only 813 in 1946 and 1158 in 1955. Yokohama is the prin. commercial port; Kobe comes next in importance, then Osaka and Moji; among other ports are Shimonoseki, Tsuruga, Otaru, and Nagasaki.

**EDUCATION.** Elementary education is free and compulsory for children from 6 to 15 years of age. There are 6141 kindergartens, 26,957 primary schools, 13,723 lower secondary (compulsory) schools, 4574 higher secondary schools, 228 technical colleges and univs., among

and univs. there are 523,270 students including 59,000 scholarship holders.

**ARMY.** From the 12th cent. till the great revolution of the middle of the 19th cent. the fighting power was restricted to a hereditary military caste, the *samurai* (q.v.) or *bushi*, whose hist., rise, and fall is sketched in the section on *History* below. Their weapons were the bow, the single-edged curved sword, and spear. The armour was of a special type which had been considerably changed since the 16th cent., when guns were introduced. A combination of metal plates and scales sewn on leather often highly decorated with elaborate embroidery, damascening, etc., it hung like a loose screen over the body of the wearer, rendering him in appearance bulky and unwieldy. The *samurai* served as feudal retainers of the great families. In the 12th cent. the great Taira and

Minamoto families predominated, and on the fall of the former the Minamotos became the chief military power, followed by the Hojos, the Ashikagas, the Toyotomis, and finally by the Tokugawas, who ruled J. from 1603 to 1867. The abolition of the *samurai* brought about a remodelling of the citizen (*heimin*, 'commoner') army on W. lines. In 1870 the new defence system was established, modelled upon the Fr. Army and the Brit. Navy, and using Ger. military equipment. By 1876 the army on a war footing reached nearly 50,000, and in 1877 successfully met the old Satsuma rebellion and defeated the old *samurai*. The evolution of the army progressed rapidly, and the Sino-Jap. war tested the capacities of the new force; in the Jap. expedition to Peking in 1900 valuable lessons were learned. The Russian war saw 800,000 troops in the field. Improvements followed, and by the Imperial ordinance of 1909 the military forces were to consist of the Active Army, liable to serve abroad, and the National Army, both in the reserves. There were militia forces in some of the Is. Service was compulsory from 17 to 40, but embodiment was deferred till 20. Two years' service in the Active Army, 'gen'eki, was compulsory for the absolutely fit, 5 years 4 months in the reserve, 'yobi,' 10 years in the second line, 'kobi,' and 2 years 8 months in the home defence, 'kokumin.' The normal strength of the Active Army before the Second World War was 15,000 officers and 242,000 other ranks. The air personnel for the army numbered in 1938 10,200, organised in 21 pursuit squadrons, 12 reconnaissance squadrons, 12 bombing squadrons, and a balloon corps. The number of aeroplanes in service was 1500. For the war with China 7 classes of reserves were called up in 1938, giving the army a strength of 850,000 after making up losses. During the 1939 campaign more than 16 divs. (over 300,000 men) were engaged in S. China. The Jap. Is. were divided into military dists. corresponding to the divs. of the army, and the dist. was the unit of administration as well as of territorial command. There were normally 17 divs., 4 independent cavalry brigades, 2 independent regiments of mt artillery, and 8 regiments of heavy field artillery. The military budget for 1941-2 amounted to 1,387,000,000 yen, exclusive of sev. appropriations for the war with China. The Imperial Jap. Army was disbanded at the end of the Second World War. In 1950 J. was allowed some rearmament. By the end of Mar. 1957 the strength of the Ground Defence Force had increased to 150,000 uniformed personnel and 11,700 civilians; the Maritime Defence Force to 19,400 and 1000 respectively; and Air Defence Force to 10,346 and 1200 respectively.

**NAVY.** In the early days, as we know from the dread of foreign invasion and the wars with Korea and Kublai Khan, J.'s navy was insignificant. In 1635 the policy of isolation led the Tokugawa gov. to forbid the building of any vessel capable of crossing the ocean, and the foreign

aggression of the middle 19th cent. showed J. defenceless before foreign sea-power. The nucleus of the navy was formed with a gift of 2 war vessels from the Dutch and Queen Victoria, and 2 purchased from the Dutch. Gradually a small force was organised, trained by Brit. officers under Sir Archibald Douglas. The fleet played a part in the Satsuma rebellion, and later J. began herself to build. Her first ironclad was built in England, 1878. At the opening of the war with China, the navy consisted of 28 vessels and 29 torpedo-boats; there were no battleships, while the Chinese possessed 2 powerful armoured ships of the line. The naval victories resulted in immediate building on a large scale, chiefly in Europe, and the Russian war saw her with 6 battleships, 8 armoured cruisers, 44 other cruisers, and 100 destroyers and torpedo-boats. The crushing defeats of the Russian Navy off Port Arthur, Togo's victory in the Straits of Tsushima, and the part the navy played in the First World War have proved the naval power of J. in the Pacific. The statistics for 1940 gave 10 battleships, 7 aircraft carriers, 35 cruisers, 5 coast defence ships, 103 destroyers, 12 torpedo-boats, and 65 submarines. Under the London Treaty, which precluded the replacement of cap. ships from 1931 to 1936, the then existing ships were to be modernised, and by 1941 the existing cap. ships had mostly been modernised. Great secrecy had been preserved concerning programmes of construction, with the result that little was known about the bigger warships being built immediately before the outbreak of the Second World War; but probably some 5 or 6 battleships of about 45,000 tons, armed with 16-in. guns, were in hand in 1941. Four armoured ships of 15,000 tons with 12-in. guns were also under construction. Two large aircraft carriers, sev. cruisers, and a large number of destroyers and submarines were also being completed. The active personnel numbered 107,000. The gross amount of the naval estimates for 1941-2 was 1241 million yen. For fate of Jap. Navy after the war, see under *History* below.

**AIR FORCE.** See under *ARMY* above.

**FINANCE.** The total revenue for the fiscal year 1956 was 1,034,923 million yen, of which tax and stamp revenue accounted for 826,717 million yen, 79.9 per cent of the total. Revenue from surplus during the preceding fiscal year was 38,064 million yen. The total expenditure was the same as the revenue with the reserve of 8000 million yen. Among the expenses, the largest were local finance grant 16 per cent, defence expenses 13.9 per cent, social security 13.4 per cent, education 12.6 per cent, and home administration 10.9 per cent. The most conspicuous change from the pre-war budget is the decrease of military expenditure from 42.5 per cent to 13.9 per cent.

**Dress, food, customs, etc.** The modern Japanese wear W. clothes in both public and private. The traditional kimono, a loose gown-like garment, is worn only on



ceremonial and some formal occasions. The old-fashioned style of hair-dressing, when the hair is carefully packed and piled with combs and ornaments is used only by geisha girls and the *kabuki* world. The staple food is rice, consumed at the rate of 4-96 bushels per head annually. It is boiled with half as much water again, and served with cooked fish, meat, vegetables, soup, and pickles. The Japanese also eat raw fish, especially tuna, and consumption of fish per head is 3 times as much as in Britain and more than 7 times that of the U.S.A. *Miso* (fermented bean paste) and *shoyu* (fermented sauce) are important ingredients in Jap. dishes, as much as 20 lb. and 4 gallons per head respectively being used annually. *Sake* (q.v.), made from rice, is still the favourite alcoholic drink, but W. wines and beers are also popular. Chopsticks are used, but these differ in size and shape from the Chinese form. The Japanese take 3 meals a day, and tea with sweet cakes is served at about 3 p.m. Much importance is attached to the appearance of both table and dishes. Table manners were governed by various ancient schools of etiquette, but such rules are now observed only on ceremonial occasions. There are sev. kinds of tea, among them *sencha*, or natural leaf green tea for everyday use, and *matcha*, or powdered green tea for the ceremony, at which it is stirred with a tea-whisk in hot water and served with exquisite ceremonial. The strictly formal cut of the tea ceremony is now limited to a few, though many of the practices are used in daily life.

The Japanese of all classes make frequent use of the bath; the body is washed thoroughly before stepping into the hot tub, which therefore serves rather as a method of relaxation. The general method of heating the house is by the *hibachi*, or charcoal brazier, a wooden or porcelain vessel containing heavy ash on which charcoal is laid. Another and more effective method is the *kotatsu*, a shallow pit in the floor, containing ash and charcoal covered with a wooden frame and mattress. The Japanese do not use bedsteads. The bedclothes are laid each night on matting, and stored during the day in a wall-cupboard (*oshiiri*).

As with much else in J., forms of entertainment have been permeated with W. influences. The cinema is popular, and J. produces more than 350 full-length films a year, a figure surpassed only by the U.S.A. during the period 1950-3. The institution of geisha girls (q.v.) is dying out owing to W. forms of amusement. The Japanese are amongst the hardest working people in the world, and, like the people of S. Europe, they need periods of boisterous relaxation, which finds expression frequently in hearty drinking and singing.

**HISTORY.** The racial origin of the Jap. people is still a matter of dispute. The ancient chronicles of the country tell that the god Ninigi descended on an E. peak of the Mt. Kirishimayama, on the is. Kyushu, as the forerunner of their first

emperor named Jimmu, about 660 B.C. Before this date they have no written hist. The Ainu or Ainos, appear to have been the inhab. of J. when the present people migrated from the adjacent continent, though which part they came from is not proved. The Ainu came from Siberia, and they appear to have found a primitive aboriginal tribe who dwelt in pits. The Ainu drove these people N. and estab. themselves on the main part of the is., but there are not many left now. They were formerly a fierce race, but cents. of oppression have reduced them to degeneracy (see also *AINU*).

Of the coming of the Japanese and the first fierce fights for supremacy very little can be written. The real known hist. begins with the Emperor Jimmu; the date ascribed to his accession is 660 B.C., but it was probably 1st cent. B.C.; from him all the emperors of J. are descended. In A.D. 200 a warrior empress called Jingu invaded Korea, crossing from J. with a large fleet and successfully subduing a part of Korea. About A.D. 500 the inhab. became properly 1 nation, a mixture of Ainu, Mongol, and some S.-Asians, ruled by 1 emperor. Although communication with the continent was frequent even in the 3rd cent., Buddhism was not officially introduced until A.D. 552. With Buddhism as the national religion, the first written constitution was pub. in 604. It was largely improved by the Emperor Kotoku in 646 with a new system of administration based on that of the Tang dynasty in China. Playing an important part in the Reformation of 646, the Fujiwara family became prominent among the nobles. They governed as agents of the emperor, spending his revenues and oppressing the people. It became customary for the empress to be chosen from their daughters; thus the early training of the royal children became one of the privileges of this powerful house which, in fact, though not in name, ruled the empire. They gave J. many scholars and statesmen, but being without soldiers or money, except for the imperial revenues, they were gradually ousted by the warrior families of Taira and Minamoto. These 2 families were at constant war with each other. The Taira were finally exterminated in 1185 by the Minamoto. For some years after this Yoritomo, the chief of the Minamoto, ruled the empire under the title of Sei Tai shogun. The emperor was merely a sacred personage during this time, worshipped, flattered, and always held in esteem but without power. Yoritomo d. in 1198, and the family of Hojo, who acted as stewards to the Shoguns, became the most powerful. The emperor of China, Kublai Khan, demanded that J. should recognise his suzerainty (1280); on its refusal a large fleet was sent which was destroyed off the coast of Kyushu in 1281, leaving J. free. The Hojo family became enfeebled by their luxury and indolence, and an organised revolt succeeded in driving it out and restoring power to the Emperor Go-Daigo, 1334, who, however, was obliged to abdicate

the Jap. governor, Count Terauchi. The offer of Prince Katsura to form a ministry was not accepted by the Lower House, and Katsura thereupon formed a new party, called *Rikken Dosh-Kai* or the Constitutional Crusaders' Association, but in 1913 he died of cancer. In Feb. 1913 the Yamamoto ministry came into power, but soon after fell owing to the Naval Scandal, aroused by the rumour that bribes had been accepted by Jap. officials from the Siemens-Schuckart Co. over the building of a Jap. battleship. After an interval, in which Viscount Kiyoura tried in vain to form a Cabinet, Count Okuma came into power on 14 April 1914, with the assistance of the new *Dosh-Kai* party. Baron Kato was made foreign minister, and after the outbreak of the First World War in Aug. 1914, he enunciated the national policy that 'Japan had no desire nor inclination to become involved in the present conflict, but she believed she owed it to herself to be faithful to the alliance (i.e. with Great Britain) and to strengthen its foundations by ensuring permanent peace in the east and protecting the special interests of the Allied Powers.' On 15 Aug. an ultimatum was issued to Germany demanding that all Ger. battleships should be withdrawn from Jap. and Chinese waters, and that the whole of the leased ter. of Kiao-Chow should be delivered up by 15 Sept. and ultimately restored to China. Having received no reply from Germany, J. declared war on 23 Aug. On 2 Sept. the Jap. Army landed in Kiao-Chow and, having been joined by a small Anglo-Indian force, commenced the siege of the forts, which, by 7 Nov., surrendered. On 16 Nov. the Allies occupied Tsingtao (q.v.). Meanwhile the Jap. fleet was active in the Pacific, destroying the prestige there of the Ger. Navy and capturing the Carolines, the Marshall, and the Marian Is.

On 18 Jan. 1915 J. surprised the world by issuing to China the unwarranted 'Twenty-One Demands' (see also under CHINA). These were divided into 5 groups, of which the last aroused the most bitter controversy. Among other things it demanded that the Chinese should employ Jap. advisers in their affairs, that the Japanese should have the right to build hospitals, schools, etc., in the interior, that a jointly administered Jap. and Chinese arsenal should be set up, and that the control of certain railways, together with the right of construction, should be in the hands of the Japanese. Under protest this group was omitted, but a revised list, together with an ultimatum of acceptance, was presented to China in May. Bitter resentment against J. prevailed in China for some years over the 'Twenty-One Demands': they also brought J. into difficulties with the U.S.A., which were only ended by an agreement between the 2 countries signed on 2 Nov. 1917.

By the treaty of Versailles, 1919, J. received, under mandate, the former Ger. colonies, the Caroline, Marshall, Marianas, and Pelew Is., together with Kiao-Chow. The difficulty with China, resulting from

this latter award, was the subject of the Pacific section of the Washington Conference (q.v.). Kiao-Chow, together with other former Ger. ter. in Shantung, was returned to China, while a treaty of Naval Disarmament between J., Great Britain, France, and the U.S.A. was concluded. The Anglo-Jap. Alliance was merged in and replaced by a 4-power treaty concluded between J., Great Britain, France, and U.S.A., aiming at the maintenance of the *status quo* in the Pacific. In domestic affairs, both during and after the war, J. was undergoing extremely rapid industrial development but had not escaped war 'profiteering,' and this, coupled with the increased cost of living, caused resentment and rioting. Before 1916 trade unions were practically unknown in J., but after that year they became increasingly powerful. Discontent among the workers found expression in strikes, of which there were 417 in 1917 and nearly 500 in 1918. The rice riots of that year brought about the downfall of Terauchi, who had succeeded Okuma as head of the gov. in 1915. A new gov. was formed with Takashi Hara, a journalist, at its head. Factory laws concerning women and children were passed, and welfare work was instituted. After the fall of the Russian Imperial Gov., J. assisted the Allies in enabling the Czechoslovakian army to escape from Siberia; and when the allied troops were withdrawn, the Japanese remained in Siberia for some time after the war. The Jap. civilians in Siberia suffered at the hands of the Bolsheviks, and it was not until 1923 that the Japanese commenced the evacuation of their troops.

At the Versailles Peace Conference J. sought to obtain the recognition of racial equality, but the required unanimous vote was not forthcoming. In 1923 the sympathy and help of the world were extended to J. to repair the damage caused by the terrible earthquake of that year (see above and under EARTHQUAKES). It may be mentioned here that the next serious earthquake in J. was that which struck central J. and the is. of Shikoku on 21 Dec. 1946, causing damage over an area 400 m. by 150 m. or about five-sixths as severe as that of 1923. In Sept. 1923 a gov. was formed by Yamamoto, after an interval of unstable ministries following the assassination of Hara on 4 Nov. 1921. In Dec. of 1923, however, the attempted assassination of the Prince Regent caused Yamamoto to resign, and a new Cabinet was formed by Viscount Kiyoura. This gov. was unpopular, and fell the following year, owing to the resentment aroused in J. by the Amer. Immigration Law, passed in May 1924, forbidding Asiatics to enter the U.S.A. General elections were held in J. at this time, and Viscount Takaaki Kato came into office with a gov. which was a coalition between the *Seiyu-Kai*, or Constitutional Political Association, and the *Kensei-Kai*, which party had arisen out of the *Dosh-Kai*. The prin. achievement of this gov. was in granting universal suffrage to all men over the age of 25. On the death of Kato the premiership fell to

**Wakatsuki.** On 25 Dec. 1926 the old Emperor Taisho died, and was succeeded by the Crown Prince, who had acted as Prince Regent since 1922, and now became the Emperor Hirohito. In the succeeding years J. was mainly occupied with reconstruction at home and the rebuilding of Tokyo, and in foreign affairs with the problem of naval security.

In 1929 Yuko Hamaguchi was appointed Prime Minister and tried to maintain friendly relations with other powers. His foreign minister, Baron Shidehara, adopted a policy of non-aggression towards China, and consented to the limitation of naval power by the London Conference (q.v.) of 1930. This caused a strong protest by the navy, army, and nationalists. Premier Hamaguchi tried to establish civilian rule over the military caste, but was murdered. The next Premier, Wakatsuki, also a civilian, attempted the same but in vain. Takeshi Inukai, leader of Seiyukai, won an absolute majority in the Lower House in 1932, but was assassinated by nationalist army officers. After Inukai's death succeeding cabinets were controlled by a military bureaucracy. In 1934 J. gave notice of termination of the Washington Treaty of 1922 (see *WASHINGTON, TREATIES OF*), a step which, coupled with J.'s policy in Manchuria, excited grave apprehension (see also *CHINA, History*).

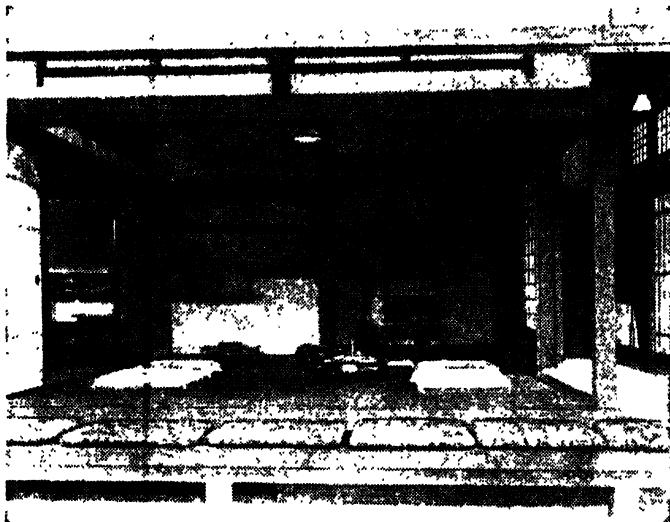
*Survival of Japanese feudal institutions.* After the middle of the 19th cent., when the influence of W. science and technology began to infiltrate into the Far E., J. made phenomenal progress in methods of modern industry and warfare. It is only against the background of J.'s social and political structure that her world outlook in the 20th cent. can be understood. Cents. of geographical and mental isolation restricted that outlook, and all J. absorbed were the superficial aspects of Chinese and W. culture. Her feudal institutions survived to the period of the Second World War. Down to 1946 there was no social or political equality and the people were divided into strictly defined classes: the royal family, the aristocrats, the warriors, and the commoners. The foundation of modern or pre-1946 J. was laid during the Meiji restoration which began in 1868. The authority of the royal family was greatly enhanced and the noble and warrior classes became the real governing classes controlling nearly all political, military, and economic power. The much extolled Meiji restoration resulted in the oppression of the masses, whose psychology became a curious compound fashioned of modern industrialism and medieval feudalism, a complex essentially favourable to militarism from above. Military expansion followed naturally. Korea was overrun and there were easy victories over China and Russia in 1895 and 1905. After the unification of Germany under Bismarck, military training in J. was a slavish imitation of the Ger. system. The Meiji period also brought with it the rise of the *zaibatsu*, the modern Jap. financial oligarchy. J.'s earliest

modern industries were war industries. It was during the Sino-Jap. wars that the notorious Mitsui and Mitsubishi combines developed their power, controlling most Manchurian enterprises and giving their support unconditionally to all the dominant militarists. Political parties were organised in this period, but this too was a movement from above and not from the people. The founders of the parties, Taisuke Itagaki, Hirobumi Ito, and Taro Katsura, came from the old aristocratic class. Such men had no sympathy with nor even understanding of democracy. Jap. parl. institutions were a sham and electoral corruption was rife. No Jap. cabinet could be formed without the consent of the army and the navy. The war minister and the minister of the navy had to be, respectively, a general and an admiral on the active list, and although they were members of the cabinet they were independent of cabinet control and enjoyed direct access to the emperor.

*Japan's Manchurian adventure.* J.'s policy towards China had openly abandoned conciliation in 1931 when the military party, swamping the Liberal Gov., launched an armed adventure in Manchuria, which soon brought the entire prov. under Jap. control. J.'s intervention in Manchuria was little more than the obvious result of a fundamental conflict of economic and strategic interests with those of China. J. realised that Chinese development of railways and ports threatened her hard-won rights in the S. Manchurian Railway. Relying on her privileged position in Manchuria, J. had invested great sums in mining and other primary resources of Manchuria—enterprises of vital importance to J.'s great home pop. Attempts to negotiate a settlement with China naturally proved abortive and the Jap. military leaders, without even consulting the Tokyo Gov., hurled their forces against the whole zone of the railway. After the disarming of the garrison at Mukden and the capture of Kirin, the Jap. authorities held their hand, and the dispute was referred to the League of Nations and the chancelleries of Tokyo and Washington. The League imposed a time limit on J. to withdraw all troops within the treaty zone, which she did while insisting that the dispute could be settled only by direct Sino-Jap. negotiations. An attempt by the powers to find a way out through the Kellogg Pact (q.v.) was equally unsuccessful. The Jap. Gov., adopting delaying tactics, steadily pursued their conquests, and then troops took Chinchow, the H.Q. of the Chinese commander-in-chief. By the end of the year (1931) they had overrun 200,000 sq. m., with no more than 20,000 troops against twentyfold that number of Chinese troops. Later a large Jap. force was landed in Shanghai, where heavy fighting began early in 1932. Meanwhile (Dec. 1931) the League appointed a commission of inquiry in Manchuria under Lord Lytton, whose report (Oct. 1932) made suggestions for setting up a regime in Manchuria, recognising

sovereignty and, at the same time, safeguarding J.'s rights. But J. had already set up a puppet gov. and created a new state, which she called Manchukuo; and her reply to the League was that she was acting in self-defence and that in any event there was no central gov. in China able to carry out a settlement. J. now began to organise larger expeditionary forces and, having withdrawn from the League of Nations, her troops advanced into Jehol and soon flung the Chinese forces out of the whole of that prov. and S. of the Great Wall.

Ju-keng in the W. dists. of N. China. Early in 1936 irregular forces, issuing from Manchukuo, drove the Chinese forces out of the prov. of Chahar, and estab. a pro-Jap. régime in that sparsely populated ter. The Jap. foreign minister (Koki Hirota) now put forward 3 points as essential prerequisites of Sino-Jap. understanding: co-operation in suppressing Communism; recognition of Manchukuo by China; and the cessation by China of all unfriendly actions in relation to J. and to the policy of 'playing off a third power against J.' The first and third were



*Canadian Pacific*

INTERIOR OF A JAPANESE HOUSE

After the occupation of Manchukuo incidents of forward movement alternated with periods of relative calm. Every succeeding year saw a further milestone on J.'s road to empire. Thus, in 1933, it was the final lopping of Jehol, with its old Chinese imperial palaces, its coal and strategic mt passes, from the main body of China and its incorporation in Manchukuo. In 1935 came the elimination of the last vestige of the traditional Russian influence in N. Manchuria through the transfer by purchase of the Soviet share of ownership of the Chinese E. Railway to Manchukuo. The same year was also marked by manoeuvres on the part of the Jap. military authorities in China, intended to sap the authority of the Central Gov. at Nanking over 75 million people in N. China. These 'fifth column' (q.v.) tactics culminated in the setting up, with the connivance of the Jap. military authorities, of a puppet regime under Lin

capable of the widest interpretation and could even justify J. asserting the right to supervise China's foreign relations and to send troops to any part of China where 'Communist' forces might be operating.

In line with the policy of expansion on land was the denunciation by the Jap. Gov. of the Washington Naval Treaty and its refusal to conclude any new naval agreement except on the basis of parity with Great Britain and the U.S.A. J. might be regarded, along with Germany and Italy at this time, as one of the 3 major dissatisfied or 'have-not' powers of the world. There is abundant statistical evidence that J.'s economic position was, and is to-day, that of a proletarian nation. J. depended almost entirely on foreign sources for such vitally important raw materials as cotton, wool, rubber, and oil, which were the lifeblood of many of its chief industries; and there is no mineral of any consequence which J. possessed or

possesses in surplus quantities. It would be an over-simplification to suggest that the Jap. Army 'staged' the seizure of Manchuria merely as a means of restoring its shaken prestige at home and driving liberalism and pacifism into the background. Other considerations were involved: the many unsettled economic disputes with the Chinese authorities; the desire to push back the reviving Russian influence in the Far E.; and the disposition of the Manchurian ruler to establish closer relations with the Nationalist regime in China. But that the Jap. Army took full advantage of the strengthened position which it acquired as a result of the outbreak of hostilities in Manchuria is unmistakable. Behind the Jap. sweep towards empire at all costs were a whole complex of impelling forces. Pan-Asianism had its part. Outside J. pan-Asianism was a negligible factor until after the Second World War, when nationalism among colonial races became active. But if the Jap. Empire was to expand further, pan-Asianism, to a certain type of Jap. mind, might become a formidable slogan. J.'s sweep towards imperial expansion was by no means purely military and territorial in character. Goods with the 'made in Japan' mark won their victories and made their enemies, just as the Jap. soldiers on the battlefields of Manchuria and Jehol. J.'s advance to a commanding position on the Asiatic continent might at this time be graphically represented by 3 arrows, pointing in different quarters: the first pointed N. to Manchukuo and the troubled frontiers with Russia; the second pointed W. to China, where the destiny of J. as an imperial power might well be settled either way; and the third pointed S. to the rich tropical lands of the European powers and America, where J.'s activities had thus far been purely commercial in character.

*Japanese 'co-prosperity sphere'—The attack on Pearl Harbour.* The collapse of Holland and France in 1940 at once led to extremist demands for Jap. intervention in the European war and for the occupation of Dutch and Fr. E. Indian possessions. To that end the very phrase 'E. Asia,' coined by the Japanese with the political implications of an E. 'Monroe doctrine,' carried its obvious menace. J. now demanded that all supplies passing through Fr. Indo-China to the Chinese Gov. at Chungking should cease and that all supplies going to Gen. Chiang Kai-shek through Burma and Hong Kong should also cease. At the same time Jap. troops were moved to the 25-m. frontier of Kowloon and a land blockade of the concession there was begun. These moves had their impulse in J.'s intense desire to settle what the Jap. Gov. styled the 'China incident,' which every statement of Jap. policy admitted to be the gov.'s first preoccupation. J.'s foreign minister, Arita, now outlined J.'s conception of a new order 'united under a single sphere' of Jap. hegemony which would cover 'E. Asia' and the S. Seas. Thus the species of Jap. 'Monroe doctrine,' first expressed in 1934, was now

widened so as to include a vast unspecified area which might embrace any land from Java to Tahiti. In fact, expansion southwards had long been the policy of an influential section of Jap. opinion, and J. had therefore steadily increased her share of the shipping in the S. Seas; while the war in China had, as we have seen, given a new significance to such expansion. The tone of the demands put forward in the middle of 1940 suggested that the collapse of France had encouraged the extremists and, through them, the Jap. Gov., to new intransigence. But the Brit. fleet, strongly based on Singapore, was by no means a negligible factor, and behind the British stood, if at this time somewhat equivocally, the Amer. fleet, which had not been materially weakened by the events of the preceding months; but though the Jap. Gov. occupied Fr. Indo-China (q.v.) they found themselves fully occupied in China, where the Nationalist forces were slowly but certainly gaining strength and conducting, not unsuccessfully, an unremitting guerrilla warfare. Yet by the end of 1941 J. had attempted no rash move, though the new gov. of Gen. Tojo entertained, in view of Russia's preoccupation with the Ger. invasion, the most grandiose schemes—schemes which the Brit. Gov. realised might well affect India. J.'s occupation of Fr. Indo-China was in reality an attempt to outflank Brit. and Amer. defences in the Far E. as a first measure to secure dictatorial control of vast ters. The strengthening of the allied line in the Middle E. had removed the immediate threat to India from the W., and the Jap. plan for creating a new order in Asia sought to eliminate the historically established rights of Great Britain, the U.S.A., and other W. powers in that region and aimed at establishing a 'benevolent' political domination over China, the Philippines, Indo-China, Thailand, Malaya, the Netherlands E. Indies, Burma, India, and Ceylon. This project, growing out of J.'s partnership with the Axis powers (see also BERLIN, PACT OF), was framed in such high-sounding assertions as that J. desired to see Asiatic peoples ruled by themselves; but it was also accompanied by a scheme of economic 'co-prosperity,' which really meant that J. hoped to secure vast resources of raw materials in exchange for goods of her own manu. These Jap. ambitions in Asia were, of course, closely modelled on Nazi ambitions in Europe, and were accompanied by the same cry for 'living space,' the same imputation of 'encroachment,' and the same declared intention to create a new economic system for 'liberated' peoples. Outwardly the Jap. aim was to prove that the W. powers had no right to influence Asiatic life and culture; actually the intention was to enable J. to become overlord of the Orient under an economic polity which would have no place for the W. powers, including even her own Axis partners. Meanwhile the Brit. authorities strengthened the defences in Malaya, and the Brit. and Amer. Govs. applied economic sanctions to J.

beginning in July 1941, with the 'freezing' of Jap. assets in reply to the Jap. move against Fr. Indo-China; while the Dutch authorities made it clear that they would protect their interests in the event of further Jap. adventures.

It was evident, when Gen. Tojo, a professional soldier, replaced Prince Konoye as premier (Oct. 1941) that J. was contemplating further military activities on a scale in conformity with the principles outlined above. Tojo's gov. now began secretly to make naval and military dispositions on a most comprehensive plan, with the view of simultaneously attacking Brit. and Amer. Far E. possessions at a moment most convenient for ensuring at least initial success. Delay would mean, in fact, giving up their dreams of forcing J.'s will on the Pacific and E. Asia and, furthermore, J.'s striking power was now at its peak. Besides these considerations, Hitler was forcing her hand in order to divert, if possible, the material aid which America was giving to the Russian armies with disastrous results on his Russian campaign. Tojo therefore sent a special envoy to Washington to join Adm. Nomura, Jap. ambas., in order to conduct negotiations for a settlement of outstanding differences with the U.S.A. if possible. In the course of these negotiations President Roosevelt sent a personal message to the Emperor of J. in the vain hope of effecting an understanding; but the Japanese suddenly, on 7 Dec., attacked Pearl Harbour and other Amer. bases in the Pacific, and after this outrage on conventional diplomatic procedure, announced that J. was at war with both Great Britain and the U.S.A., in the W. Pacific. Both those countries promptly declared war on J.

*The first two years of the war in the Pacific.* Soon after the attack on Pearl Harbour Jap. planes bombed and sank the great Brit. warships *Prince of Wales* and *Repulse*, thus gaining command of the seas in the S. Pacific. By the early days of 1942 they had swept through Thailand (Siam) to Burma and captured Penang, Hong Kong, and the greater part of the Brit. Malay peninsula and were landing fresh troops in the Philippines. Thus in the early period of the war in the Far E., Jap. arms carried all before them. Attempts by the Allies to hold fortresses and conduct campaigns without aircraft cover failed disastrously: Hong Kong, Malaya, and Singapore were inevitably lost in this way; and the Japanese conquered the Netherlands E. Indies, Borneo, the Philippines, the Andamans, and most of Burma, and by cutting the Burma Road (q.v.) they isolated China. Only as America and Britain increased their air cover was Jap. expansion stopped eastward by the battle of the Coral Sea (May 1942), followed in the next month by the battle of Midway Is.; and westward by the defeat of air attacks on Ceylon. Throughout 1942, however, the Jap. war took second place in the eyes of Brit. and Amer. statesmen, who were bent on intensifying their effort against Germany as

offering by far the greater danger. But by pursuing an offensive in Papua the Jap. forces were now directly threatening the mainland of Australia, and it was essential for the Allies to check any further advance. Hence in a strenuous campaign over jungle and mt. terrain Australian troops repelled the invaders and captured Gona and Buna, the Jap. bases on the N. coast of New Guinea, exterminating their garrisons. While this war was in progress Amer. marines were landed on the large is. of Guadalcanal (q.v.) in the Solomons and captured an aerodrome which the Japanese had recently constructed there. For long the Japanese fought hard to regain the aerodrome, but by Feb. 1943 the Americans had captured the is. This provided the *point d'appui* for a long-drawn but effective process of 'is. hopping,' which gradually pierced the far-flung outer chain of strongholds covering J. from the Pacific, a process in which the ever-growing air and naval superiority of the Americans eventually asserted itself. For some time after the Japanese had been driven out of Guadalcanal no big land action was fought in the Pacific theatre, but the Americans continued to bomb Jap. bases, and by combined sea and air operations thwarted all Jap. efforts to reinforce their positions, especially in what is known as 'the battle of the Solomon Sea' (Mar. 1943) when J. lost 10 warships, over 100 aircraft, and 15,000 men. In the middle of 1943 the Americans landed forces on New Georgia, while the Australians made progress along the N. coast of New Guinea. Lae and Salamaua, the 2 chief Jap. bases on New Guinea, were taken by the Australians in Sept. 1943. Rabaul, the great Jap. base in New Britain, was overcome by the Americans at the end of the year, who were enabled to gain control through the construction of distant airfields. The first ter. taken from J., which was not a mere recovery but had been in Jap. hands before the war, was the Marshall Is., which gave a base for bombing Truk, in the Carolines, the greatest of J.'s Pacific bases; and continuing their westward and northward advance the Americans, by the middle of 1944, reached the Marianas and captured the strongly fortified is. of Saipan, where at last they had secured an air base within long-distance bombing range of both the Philippines and of J. itself.

*The last two years of the war in the Pacific.* The continual deterioration of the war situation, both for J. herself and for her ally, Germany, throughout the period of the Koise Cabinet brought that gov. down in April 1945. Political developments within J. reflected events in the military and naval fields in 1944-5. Most serious of all, the Jap. Navy was now definitely deprived of command of the sea, even in those inner waters in which it was expected to have a great strategic advantage, so that J.'s shipping routes through the E. and S. China Seas, and even the coasts of J. herself, were laid open to attack. This meant the breakdown of J.'s

original strategy, which relied on the bases in the Carolines, Marianas, Philippines, and Ryukyu Is. as "unsinkable aircraft carriers" for covering J.'s maritime communications to the mainland of Asia and the Malay Archipelago and for preventing a close approach of the enemy by sea to the Jap. homeland. It meant also that J. was subjected to air attacks heavier than was expected; strong carrier-based air forces, as well as Super-Fortresses from Saipan, now took part in raids, and after the Amer. capture of Iwojima in the Bonins, land-based fighter aircraft were able to support the bombers, and the relative invulnerability hitherto given to J. by her geographical remoteness from allied bases was being rapidly discounted.

J.'s hope of using Burma as a spring-board for invading India had been finally destroyed by the failure of the Jap. thrust into Manipur in the spring of 1944; but Burma was still useful for defending the land approaches to Siam and Malaya and blocking the Burma Road supply route to China. Hence J. was prepared to fight stubbornly to hold it, and with the greater hope of success from the fact that the task of the allied leader, Adm. Mountbatten, was made more difficult through the low priority for shipping and landing craft allotted to his SE. Asia Command. During the winter of 1944-5 Adm. Mountbatten was restricted to an offensive campaign by land across densely forested mt ranges between India and Burma, hampered by the most formidable difficulties of transport. But these difficulties were overcome, largely by the aid of airborne supplies, and with the capture of Mandalay the Jap. hold on Upper Burma was broken. Again, the allied success at Myitkyina had led to the prolongation of the road from Ledo to meet the old Burma Road, and it was possible once more to send lorries through to China.

In striking contrast to the ship-starved offensive of the SE. Asia Command of Adm. Mountbatten, the Amer. invasion of the Philippines under Gen. MacArthur was carried out with an immense concentration of maritime transport and newly built landing craft. Against this massive attack the Japanese had some 200,000 men in the Philippines, but they were scattered over many different is., and the native pop. was either apathetic or hostile. Even in the inner waters of the archipelago movement by sea between the is. was threatened by Amer. air attack. For J., therefore, everything depended on victory over the Amer. fleet; without command of the sea the dispersed Jap. land forces would be isolated in their various captured is. It was the moment for J. to risk a naval battle, and in Oct. 1944 the main strength of the Jap. Navy was deployed in a determined attempt to crush the Amer. naval force which was covering the invasion of Leyte. The battle which ensued was a decisive defeat for the Japanese and it decided the fate of the Philippines. Strategically the Amer. reconquest of Manila with the naval harbour of Cavite meant that all Jap. shipping

routes S. of Formosa and Hong Kong were now exposed to close naval and air attack. The vast ters. to W. and S. of the S. China Sea overrun by the Japanese since 1940, comprising Indo-China, Siam, Burma, Malaya, and the Dutch E. Indies, were now virtually cut off from J. by sea. Some slight compensation was provided for J. by the success of an offensive in S. China which opened a land corridor from the middle Yangtze to Indo-China, but this could be only of limited use for military movements. To all intents and purposes J. had now lost the resources of the S. lands and her garrisons remaining there were almost as effectively isolated as the by-passed forces still holding out in New Guinea, New Britain, Bougainville, and Truk. But the opening of through communications from Hankow S.-westward to Indo-China and southward to Canton yielded overland routes valuable for Jap. continental strategy, besides defeating and dispersing large Chinese armies in Kwangsi and Kwangtung and resulting in the capture of a number of airfields constructed at great expense by the Americans for the use of their air forces in China. The Jap. commander-in-chief in China responsible for this successful campaign, Gen. Hata, was made a field-marshal and brought back to J. to be inspector-general of military training, and in 1945 he was appointed by the Suzuki gov. one of the 2 commanders for the military defence of the Jap. homeland. The Jap. hold on China, however, despite this success of Gen. Hata, was now threatened from a new direction—from the sea which the Jap. Navy had formerly controlled, but controlled no longer. The Japanese, now that Germany was beaten, had to prepare to defend Hong Kong, Canton, Amoy, and Shanghai against allied seaborne invasion. They had also to prepare to defend Indo-China against attack from the sea now that the Americans were estab. in the Philippines.

For the ordinary Japanese, however, and indeed for his rulers, no theatre of war could compare with the homeland in importance. For the *shinkoku* or 'divine land' was now threatened with invasion from the sea. The loss of Saipan had brought down the Tojo Cabinet and the fears aroused by this event were soon realised in 'Super-Fortress' raids on the industrial cities of central J., including Tokyo itself. Soon the premier, Koiso, had to admit the loss of Iwojima (21 Mar. 1945) and the Jap. Navy, after its mauling in the Philippine waters, did not dare to go to the rescue of the garrison. Then Adm. Nimitz invaded Okinawa, an is. of the Ryukyu group commanding the sea approaches to Shanghai as well as to SW. J. The air-raids by the great Amer. bombers reached a climax in Mar.-June and with the promise of still worse to come. The gov. was petitioned to take more drastic action in the matter of shelters in Tokyo, but was powerless to do more than advise everybody not needed in Tokyo to depart at once, huge areas of the cap. being now devastated.

The prospect in the spring of 1945 that Germany would be defeated confronted J. with a major problem which was at once political and strategic. For obviously with Germany out of the war, far greater forces would be available to concentrate on J. But whether to give up the outer zone of conquests from Burma to the Carolines and concentrate on the defence of the inner zone comprising J. itself, Korea, Manchuria, and China, was a problem which brought extremists and moderates in sharp conflict with each other. Koiso told the Diet on 23 Mar. that J. intended

negotiations. Therefore in April (1945) the influential groups secured the appointment as Prime Minister of Adm. Suzuki, former Grand Chamberlain, in place of Koiso. Yet even before this statesmen behind the throne had been preparing the way for such an appointment and restraining the agitation of Col. Kingoro Hashimoto's fanatical followers for a 'regeneration' of the political structure. Koiso, though an extremist in foreign policy, was a conservative in domestic affairs, and therefore willing to co-operate with the elder statesmen against Hashimoto, whose



New York Times Photos

THE EMPEROR HIROHITO IN PUBLIC, 1946

to take the offensive to retake Iwojima, Saipan, and Guadalcanal. Okinawa had not then fallen, and it was a more serious loss even than that of the other is. Yet he was unable to explain how J. could effect such a miracle if her navy dared not venture out of its home waters. But the extremists, often composed of the more youthful officers, could not prevail against the general staffs and the *sabats* or great business houses whose minds had not, of course, been deluded by the fraudulent war-time Jap. propaganda. These knew, even before the end of 1944, that the tide of war had definitely turned against J. and that it would soon be a question of trying to get out of the war on terms falling far short of J.'s original ambitions. Thus, while as yet there was no question of unconditional surrender, it was essential to get rid of the ultra-extremists who would bar the way to any hope of peace

group wanted to get rid of the Yokusankai and substitute a large, unified, and disciplined party state on the familiar Fascist model. The Yokusankai had, since 1942, been the only recognised political organisation, but it had never had any real political stamina, and behind this façade the old-time politicians retained their party groupings and more or less supported the gov. of the day. But apart from these party difficulties, Koiso also found the same difficulty as his predecessor, Tojo, had in securing effective co-ordination between the gov. and the High Command. Tojo had been his own war minister and had ultimately made himself chief of the army general staff as well; Koiso deemed it imprudent to excite criticism by arrogating these posts to himself and therefore tried to co-ordinate their functions through the Cabinet secretary. But there were repeated changes in



this office, one appointee after another being regarded as unsuitable—an indication more of the gravity of the administrative crisis facing the gov. than of the inherent importance of the office.

*Closing days of the war and surrender of Japan.* The Jap. garrison of 100,000 men on Okinawa defended the is. with the utmost tenacity, as indeed had the garrison of 20,000 on Iwojima, but organised resistance on Okinawa ceased on 21 June. The campaign in the Philippines ceased at the end of the month. On 14 July J. was bombarded by Amer. warships. Then, on 6 Aug., the first atomic bomb was dropped on J. at Hiroshima (q.v.); the second (and last) of the missiles on Nagasaki on the 9th. Thus did disasters accumulate and without hope of mitigation in any quarter. On the verge of surrender, J. now found herself confronted by a new and powerful enemy in Russia, which nation had not renewed the Neutrality Pact due to expire in April 1946 unless expressly renewed, and now declared war on J. to wipe out the humiliation of past defeats and to restore the *status quo* of nearly half a cent. ago. On 9 Aug. the Red Army invaded Manchuria. Meanwhile allied aircraft, operating from speedily organised runways on Okinawa, destroyed in one day 60 more Jap. ships. This was the end. Though J. still had a great fighter air force it was to a great extent a grounded force. The measure of Jap. losses was catastrophic. Thus in New Guinea, of an army of originally 120,000 men only 12,000 survived. Between the date of the attack on Pearl Harbour and Aug. 1945 some 320 Jap. warships had been sunk or put out of action, including 11 battleships, 17 heavy and 22 light cruisers, 7 aircraft carriers, 139 destroyers, and about the same number of submarines, 4 escort carriers, and other craft. J.'s mercantile marine had practically disappeared. On land, sea, and in the air J. was shattered and was now in fact faced with the prospect of speedy annihilation from further atomic bombs. Hence on 14 Aug. J. accepted the allied demand for unconditional surrender addressed from Potsdam (see POTSDAM CONFERENCE) in the names of Mr Churchill, President Truman, and Gen. Chiang Kai-shek. Amer. forces began landing in J. on 29 Aug. and the instrument of unconditional surrender of J. was signed on board the Amer. battleship *Missouri* in Tokyo Bay on 2 Sept. Within the ensuing days of the month the Jap. forces in Luzon (Philippines) and throughout the SW. Pacific also surrendered, while the surrender in SE. Asia was received by Adm. Mountbatten on 2 Sept. That of the Jap. forces in China was signed at Nanking by Gen. Okamura on 9 Sept. For details of the war in the Far E. see BURMA, SECOND WORLD WAR CAMPAIGNS IN; MALAYA, BRITISH, JAPANESE INVASION OF (1941-2); NAVAL OPERATIONS IN SECOND WORLD WAR; PACIFIC CAMPAIGNS OF FAR EASTERN FRONT IN SECOND WORLD WAR.

*Japan's new epoch.* The surrender of

J. marked the opening of a new epoch in the hist. of the Far E. For the preceding half-cent. J., as has been shown, had pursued an uninterrupted policy of expansion. Her imperialistic aims had dominated the mind of the ruling class which moulded the outlook of the Jap. people in a manner to which hist. affords no parallel. On the basis of unquestioning loyalty to the imperial throne, the whole nation was taught to face any hardships which might be entailed in following the national destiny; the throne itself was exalted from a temporal to a quasi-divine institution and, like the *Herrenvolk* of Germany, the servants of the throne down to the humblest private soldier were encouraged to regard themselves as a race apart from the rest of mankind, participating in the God-like characteristics of emperor and nation. Naturally the governing class was apprehensive lest the surrender should have a disastrous effect on public morale and they exhorted the people to look upon the calamity as a mere temporary set-back due to the atomic bomb; but when they realised that popular loyalty was unimpaired they made no further attempt to minimise the implications of surrender. But, immune now from the risk of arrest, Prince Konoze, thrice Prime Minister of J., and after the surrender again one of the emperor's advisers, was the first important Japanese since the surrender to declare to the world that both the 'China incident' and the war with the Allies could have been averted and that the Jap. militarists were principally guilty for both. Some of the old-time leaders sought suicide. F.-M. Sugiyama, chief of the Jap. General Staff up to Feb. 1944 and later minister of war in the Koiso Cabinet, committed suicide on 12 Sept., and Gen. Tojo tried to kill himself when Amer. officers went to arrest him. Gen. MacArthur, supreme commander of the allied forces of occupation, at once ordered the dissolution of the notorious R. Amur Society (sometimes called Black Dragon Society, originally founded to encourage the exclusion of the Jap. frontier to the Amur in Manchuria, the militarist secret organisation which for 45 years, by assassination and other methods of coercion, ruled Jap. political life) and the arrest of its leaders. Among others arrested at this time was Adm. Shigetaro Shimada, who, as navy minister, planned the attack on Pearl Harbour. Gen. MacArthur found comparatively little difficulty in carrying out his instructions for the disarmament of J. and for the destruction of her war potential both in the moral and material sphere. The land forces were disarmed and disbanded and all aircraft were confiscated. The U.N. (q.v.) agreed to scuttle all surviving Jap. war vessels, except about 40 destroyers and some coast defence vessels. After the dissolution of the Imperial General H.Q. and the arrest of many prominent individuals preparatory to their indictment as war criminals (see JAPANESE (WAR CRIMINALS) TRIAL) came the entire control by allied authorities of the

commercial and industrial life of J.; the break up of large estates among peasant proprietors; and the diversion of productive capacity into a programme to provide the people with the necessities of life. All barriers to the gathering and dissemination of news were removed, censorship by the Jap. authorities was forbidden, and the whole foundation of the elaborate system of 'thought control,' so effectively conducted for many years by the governing oligarchy, was destroyed. The speed of social reform, and especially the abolition of the *kempai* or military security police, led to the reconstruction of the Jap. Cabinet, and Prince Higashi-kuni, who had succeeded Suzuki as premier, gave place to Baron Shidehara, whose administration gave an assurance that the political power of the military clique and of the bureaucrats of the old type had been broken, and that the aim of the administration was to inaugurate a regime in which policy would be determined by the will of the electorate.

A year after the surrender the House of Representatives in Tokyo adopted by an overwhelming majority a new draft constitution for J. superseding the Meiji constitution of 1889. This new constitution indicated a wish to depart entirely from traditional beliefs wherever they were in conflict with the concepts of W. democracy. Based largely upon Amer. ideas, the new constitution based the foundations of the State not upon divine mandate, but upon the will of the electorate; it restricted the functions of the emperor, who became a symbol of the State; it renounced warfare as an instrument of public policy, and banned the maintenance of any armed forces by which war could be waged. The adoption of this constitution was perhaps not surprising in view of the fact that defeat had destroyed the foundations of national life and left nothing in their place. All the old beliefs and traditions had gone. In place of an outburst of dangerous subversive activity by militarist leaders, such as had been confidently expected by experts in Far E. affairs, the Jap. people now seemed engrossed in novel political developments on democratic lines; while the trials of war criminals, so far from investing leaders of the old type with the halo of martyrdom, merely completed their discredit in popular estimation, and the Diet itself pressed for a more thoroughgoing 'purge' of officials than any upon which the Allied Command insisted. The Jap. people in fact desired neither revolution nor reaction: they were concerned principally with orderly development, and the elections of April 1946, so far from representing a landslide in any direction, gave a small majority in the House to a coalition of Liberals and Progressives, the heirs of the former Yokusankei and Minseitō groups, whose popularity, however, was then steadily declining, while that of the Socialist party was sharply rising. Women voted for the first time in Jap. hist. and there were 38 women among the candidates elected. The voting age for

men had been reduced from 25 to 20. Experience throughout 1946 showed that Gen. MacArthur could rely upon Jap. co-operation in the task of restoring normal social and economic conditions. His directives were issued to a 'Liaison' dept, which was in effect the Ministry of Foreign Affairs. Allied Military Gov. also existed, but its prin. functions were supervisory rather than actually administrative. Perhaps the greatest contrast with the allied occupation of Germany was that, instead of being split up into administrative zones, J. was administered as a whole by the single controlling authority, the Supreme Commander's H.Q., working through the Jap. Gov., and in the provs. through the Allied Military Gov., which, despite its name, was in fact entirely staffed by Americans.

The new constitution came into effect on 3 May 1947. The first election for the House of Councillors, the new upper House of the Diet replacing the old House of Peers, was held on 20 April, and that for the Lower House on 25 April. The Socialists gained more seats than any other single party, but the Communists polled only 1 per cent of the total popular vote. The House of Representatives of the Diet elected (21 Feb. 1948) as premier Hitoshi Ashida, Democratic party leader, to replace Tetsu Katayama, a Socialist and a Christian, who had come into power in May 1947 and whose Cabinet now resigned (10 Feb. 1948).

Through all the vicissitudes of total defeat, total demilitarisation, and total occupation the Japanese succeeded in adhering to the 3 things essential to the future plans with which they are credited—the emperor system, the national structure of gov., and the close-knit official bureaucratic machine. Under Gen. MacArthur a 'model' new democratic constitution became law. A democratically elected Diet, fashioned partly on the Brit. Houses of Parliament and partly on the Amer. Congress, was actively functioning. A sweeping land reform was instituted; and trade unions were legalised after years of militaristic repression. Ultra-nationalists and militarists were purged from public offices. But it was objected by some observers that J.'s democratisation existed only on paper and that while, militarily, the occupation was smoothly successful, politically it achieved very little that would endure. Economically J. was slowly recovering but still dependent upon America's bounty. Socially, as an instrument for inspiring feudalistic J. to become attracted to Westerners and their ideas, the occupation might well transpire to have failed. In the material sense J. was completely disarmed, a task in which the Brit. Commonwealth troops took an important part. Without allied permission and assistance, J. could not re-create her military machine for many years. But there was no corresponding mental disarmament or change of heart.

Despite the democratisation of Jap. political and social institutions, both allied H.Q. and the Jap. Gov. felt

increasing concern over the activities of the Jap. Communist party, the leaders of which held their sixth ann. congress at the end of 1947. In his New Year message to the people, the former premier, Tetsu Katayama, pledged the Social Democratic party to a 'fight against Communism' to the last ditch. His Cabinet made known its intention to combat Communist influence in labour unions so far as the constitution permits. But the strength of the Communist party seemed unimpaired. The hist. of the Jap. Communist party, *Nippon kyosando*, as an independent party began in 1921, when 2 men, Tokuda and Nosaka, attended the Far E. Communist Conference in Irkutsk, under the presidency of Stalin. But their influence remained negligible until the party was formally reorganised in Dec. 1945. After that date, although claiming officially only 17,000 members (the unofficial figure was 100,000), the party became a powerful and aggressive minority group, supported by a large body of sympathisers and wielding through tireless activity an influence out of all proportion to its numbers. Their immediate aim was to win over the labour unions. Until Gen. MacArthur prohibited the general strike planned for 1 Feb. 1947 the National Congress of Industrial Organisations, with the aid of the Jap. Federation of Labour, steadily endeavoured to stage mass demonstrations, strikes, and 'production control.' This evidently indicated that the infiltration tactics of Communists had met with some success. Success in the big industrial centres during the so-called 'October offensives' of 1946 and 1947 and the control acquired in certain rural areas, coupled also with the work of the Young Communist League (*Seinen kyosan renmei*), were all indicative of the party's existing and potential strength. The Communist expansion reached its peak in 1948-9, under the second and third Cabinets of Shigeru Yoshida, leader of the Jap. Liberal Democratic party and a determined anti-Communist. The start of the Korean war in 1950 inspired the Jap. Communist party to adopt measures which caused outbreaks of disorder all over the country. There was particularly grave rioting at Tokyo on 1 May 1952, resulting in more than 500 casualties. The Communists lost many supporters, and Yoshida re-established order by the creation of new army and navy defence forces, an Internal Security Bureau, and regulations against destructionism. Until 1955, however, the state of Jap. political parties was one of utter confusion; but in that year the Democrats and Liberals united to form a new conservative group named the Liberal Democratic party (15 Nov.). A month earlier the left- and right-wing Socialist groups combined as the Jap. Socialist party. This was a completely new phenomenon in J.'s parl. hist. The doctrine of the Liberal Democratic party is that of parl. democracy, while that of the Socialists aims at the abandonment of the capitalistic structure through parl.

methods. The party strength in the House of Representatives in July 1956 was: Liberal-Democrats 299; Socialists 153; others 10; vacant 5; total 467. In the House of Councillors it was: Liberal-Democrats 122; Socialists 80; others 48; total 250. The Liberal-Democrats' leaders are Nobusuke Kishi (premier since Mar. 1957), and Tanzan Ishibashi. Mosaburo Suzuki, Jotaro Kawakami, and Inajiro Asanuma lead the Socialists, and the Communist party leaders are Sanzo Nosaka and Yoshio Shiga.

LANGUAGE AND LITERATURE. With the exception of that of the Luchu Is., no other language claims relationship to the Japanese. Some authorities include it in the 'Altaic group'; it is an agglutinative tongue. Many Chinese words are employed, especially for new words, such as 'bicycle.' It is exceedingly difficult to learn, and a great deal of Chinese must be understood as well. There are practically 3 languages to learn, the colloquial, the polite, and the written, which all differ to an extraordinary degree. The written language of the earliest times probably closely represented the colloquial, but by the 9th-10th cents. the 2 forms of speech began to separate, the spoken form being changed much more rapidly than the written. The literature of the country is frequently written in Chinese. Notwithstanding the difficulty of learning the Jap. scripts, illiteracy is only 10 per cent of the nation in J. proper. Moreover English is the language of commerce and is compulsory in the high schools. See S. Miyazaki, *The Japanese Dictionary explained in English*, 1950.

The earliest book we know of is the *Kojiki* (Record of Anc't Matters), AD 711-712. It contains a story of the creation and the heavenly birth of the Jap. race, with a hist. of some of the early emperors, with sev. songs included; much of it is dull and primitive. The next book, written AD 720, is the *Nihonshoki* or *Nihongi* (Chronicles of J.). It was written entirely in Chinese, and from that time most of the literature was pub. in Chinese. Another book, about AD 780, is called the *Manyōshū* or *Collection of the Murad Leaves*, an anthology of the anc't poems. There are sev. hist., notably the *Nihon Gwaishi*, a few law books, and a great deal of poetry. The classical romances are exceedingly charming, such as the fairy story entitled *Taketori Monogatari* (Tale of the Bamboo Hower), 9th cent. etc. Among the diaries is one called *Murasaki Shikibu Nikki*, written by a Jap. authoress, and very difficult to read. Women have always largely influenced the literature of the country, and have added many works of merit and charm. During the time of peace under the rule of the Tokugawa Shoguns philosophy was much studied, while popular romances and drama became common. Chinese influence on Jap. culture gradually receded. After the Restoration an enormous number of Eng. and Fr. works were trans. and pub., naturally influencing the literature of the time.

More modern authors include Rohan Kōda, Futabai Shimei, Ōgai Mori, a surgeon-general, Ryunosuke Akutagawa, and Ichio Higuchi, who borders on genius in her life-like tales. Among 20th-cent. writers are Mushakoji, Arishima, Shiga, Nagayo, Nogami, Nakajo, Oguri Tayo, Kosuruga Tagai, Yanagawa Shunyo, Ōzaki Koyo, Kunikida Doppo, Tosan, Masamune, Shimamura, Shima-zaki, Iwana, Tokuda, Kikuchi Kan, Hayashi Fusao, Yokomitsu Riichi. See D. Keene, *Anthology of Japanese Literature*, 1956, *Modern Japanese Literature*, 1957.

There were, before the Second World War, many newspapers and journals, and some Jap. newspapers printed in English. Yokohama produced the first daily paper, 1871, also the first Eng. jour., *The Japan Mail*, 1865. The Jap. press was unfortunately hampered by vigorous censorship.

The No plays (q.v.) are the classical drama of J. Historical dramas and comedies of contemporary life are the most popular, and many European works have been trans. and adapted. Tsunouchi is a 20th-cent. dramatist of repute. For greater detail see DRAMA. See also E. Ernst, *The Kabuki Theatre*.

Japanese music is simpler in melodic structure than W. music.

See also JAPANESE ARCHITECTURE and JAPANESE ART.

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**Japan, Sea of, or Japan Sea (Nipponkai)**, divides the is. of Japan from Korea and E. Siberia. It is almost tideless and extends about 600 m. from E. to W. and 500 m. from N. to S. with an average depth of 1200 fathoms.

'Japan News,' see ARMY NEWS SERVICES.

**Japanese Architecture** was based primarily upon older Chinese architecture, but developed distinctive characteristics of its own. Up to quite recent times, most Jap. buildings were constructed entirely of timber, and some of them erected more than 1200 years ago still survive. The reason for adopting timber construction is partly that it resists earthquakes more effectively than brick or stone do. Roofs were steep, with immense projecting eaves carried on carved brackets, and were either hipped or

gabled. They were generally covered with tiles. Curving lines predominated throughout. The chief surviving historical examples are Buddhist temples, viz. the group in the ant. cap. city of Heijō, near Nara, with a pagoda, 8th cent. AD; temples of the Heian period (784-1185) on Mt Kōya and Mt Hiei; temples of the Kamakura period (1186-1392) at Kamakura, showing Chinese influence; the temple gateway of the Muromachi period (1393-1572) at Kyoto; and the temple of the Momoyama period (1573-1614), near

unknown. It clearly shows the colouring and construction of Ajanta and Tartary schools. The frescoes were burnt by fire in 1949. The first famous native artist of whom we know was a noble named Kōsē-no-Kanaoka, at the court of the Emperor Seiwa, about AD 880; very few of his works have survived, and those that have are chiefly conventional in design, but most perfect in their blending of colours. His descendants, who continued to the close of the 15th cent., were famous artists, and founded the native school of



HIMEJI CASTLE, JAPAN

The keep was built 1581-1610.

*Japanese Embassy*

Sendai. In modern times reinforced concrete has largely replaced timber construction for all buildings except dwelling-houses, and W. fashions of design have mainly superseded native tradition. The Imperial Hotel at Tokyo (1916), by the Amer. architect F. L. Wright (q.v.), is a typical example. Many or most Jap. houses, however, continue to follow the native tradition in their very light construction, and have notably stark interiors free from all superfluous ornament and furniture. See also JAPANESE ART, and bibliography.

**Japanese Art** is essentially realistic, almost impressionist. Studies from nature are perfect and alive. The art of painting has existed in Japan for 12 cents. Since 1897, when national treasures became protected, and reproductions were pub., the real art of the nation has become better known. The oldest painting of whose existence we know is the 12 frescoes in the main hall of the temple of Hōryūji, near Nara, of AD 607, but the artist is

Yamatōe; the followers of this particular branch of painting delighted in quaint animals, insects, and imagined creatures, grasshoppers, frogs, butterflies, and hobgoblins, etc., which they represented with extraordinary charm and vitality. During the 15th cent. 2 Buddhist priests became very famous: Chōdōsu (Mincho) and Nyōsetsu. Both were the pioneers of *suiboku* (black-ink painting) school, and the latter instructed Shūbun and Sesshū. A little later came Kano Masanobu, a pupil of Shūbun and founder of the Kano school. These 3 and Tosa Mitsunobu (Tosa school) became the leaders of 3 famous schools of painting. The Kano school has outlived the other 2, with its generous breadth of idea, its extreme simplicity, and its brilliant colour schemes. A new development of art began with Hishikawa Moronobu (d. 1694); his pictures are filled with delicate work; he gave Japan her first beautiful wood-engravings and illustrated books. About 1775 Ōkyō became famous for his representations of

animal life. Following the Kano school came Ogata Korin (1663-1743), a man who left his eccentric and vivid influence on the works of his many pupils; he also excelled in lacquer work. Distinguished traditional painters after the Meiji restoration are Kano Hogai, Haahimoto Gabo, and Yokoyama Taikan. The W. style of painting has estab. itself as the major school of Jap. modern painting, and Sotaro Yasui and Ryuzaburo Ume-hara are the 2 most prominent masters.

Sculpture and carving in metal and wood have been a highly developed art in Japan for 12 cents.; many of the temples are store-houses of fine examples, going back as far as the 6th cent. Sacred images were not the only subjects for the glyptic art: bells, vases, candlesticks, lanterns, arms, and armour all being objects for the artist's skill. Stone was never used to any extent, but bronze, ivory, and wood have always been employed from the earliest times. The golden ages of Jap. sculpture are the Nara period (645-781) and the Kamakura period (1184-1335). The finest examples of these periods can be seen in nearly all the anc. temples in Nara and Kyoto. Among those whose names were recorded, the most distinguished are Tori (7th cent.), Jocho (d. 1057), Unkei and his pupil, Kaikei (12th-13th cents.). The elaborate metalwork of the sword hilts, when every noble and *samurai* carried a sword, was for over 500 years a wonderful work of art. Many of these sword sculptors were held in great esteem, while the swords themselves were handed down as family heirlooms. The art of inlaying with gold and silver became highly developed at a very early time. A great deal of their bronze work is very fine; one particular kind which colours to a golden yellow is remarkable to a degree, and the Japanese have excelled in this particular branch of metalwork. The common domestic flower vases, alcove ornaments, and incense burners are often of exceeding beauty of design and workmanship. The great bronze Buddha at Nara, and the huge Amida at Kamakura, are a proof of their early skill in casting large objects. Another branch of art grew quickly with the use of tobacco, and this was the carving of *netsuke*, or buttons employed to suspend the tobacco pouch from the girdle, also the bowl of the pipe and the pouch clasps. Following the *netsuke* came the *okimono*, little ornaments, wonderful copies of crayfish, dragons, eagles, birds, and the like; some were of large size, but many of the most perfect are tiny little productions to delight either an artist or a child. Wood-carving has, from very anc. days, been one of Japan's greatest arts. The temples bear the records of cents. of exquisite work, but seldom the names of the artists. Decorative wood-carving flourished in the Momoyama period (1573-1614) to its greatest extent, as applied to castles, mansions, and temples. The art of the woodcut was introduced into Japan from China, and was used for the printing of texts and pictures. The name of

Katsushika Hokusai (q.v.) (1760-1849) is well known in this field; his 36 views of Mt Fuji are of remarkable beauty. He illustrated numberless books, and represented both scenery and human life with accuracy and vividness. By his prints and drawings he transcended nationality and may be considered one of the world's great masters. Other famous names are Utamaro (q.v.) (1754-1806) and Hiroshige (q.v.) (1798-1858), who depicted every aspect of his country in numerous sets of prints. The Jap. colour print has been one of the important influences on W. art since about 1860.

The art of lacquering was a gift from China at the beginning of the 6th cent. Plain black lacquer was the first achievement, later mother-of-pearl and gold dust decorated the work, followed by conventional patterns, and still later by floral designs of great beauty. Features of the temples and castles were adorned with the most elaborate lacquer work. In all the finer examples of this art gold predominates, and the effect is rich and soft. Enamelling is another development of the modern Jap. artist. To-day vases, bowls, censers, etc., can be obtained in the finest cloisonné enamel work. The translucent enamels are wonderfully decorative, both in delicate design and exquisite colouring. Mention should also be made of the 'tea ceremony' (*cha-no-yu*) as a form of aesthetic ritual, establishing a standard of harmonious design in all its accessories since the 15th cent.

According to a survey carried out by allied H.Q. only 38 of Japan's 5703 greatest national art objects were damaged or destroyed by air-raids during the Second World War. Jap. A. must always appear different from the art of other countries; in one sense it is impressionist by reason of its choice of subjects and want of detailed background; yet in another sense the perfect painting of every petal, feather, or feature makes their productions anything but impressionist. Their whole art, in which is reflected the true national character, aims at perfection in one main object, with a consequent simplicity and disregard for what is non-essential. See also JAPANESE ARCHITECTURE. See L. Binyon, *Japanese Colour Prints*, 1923, and *Painting in the Far East*, 1934; H. Minamoto, *Illustrated History of Japanese Art* (trans. H. G. Henderson), 1935; K. Toda, *Japanese Scroll Painting*, 1935; N. Tsuda, *Handbook of Japanese Art*, 1935; Jean Buhot, *Histoire des arts du Japon*, 1949; R. T. Paine and A. Soper, *The Art and Architecture of Japan*, 1955.

Japanese (War Criminals) Trial (1946-1948). The International Military Tribunal for the Far E., under the presidency of Sir Wm Webb, met early in 1947 to try the Jap. war leaders Hideki Tojo (q.v.) and his 24 co-defendants for conspiring to wage aggressive war for the purpose of securing military, naval, political, and economic domination of E. Asia and the Pacific and Indian Oceans; for responsibility in 'conventional war crimes' (i.e.

atrocities) practised by the Jap. Army and Navy; for breaches of the laws and customs of war, and on many other counts. The trial lasted 417 days and adjourned on 16 April 1948, after hearing the prosecution's final reply to the summing up of the defence, judgment being delivered on 12 Nov. The tribunal found all the defendants guilty and 7 of them were sentenced to death by hanging. Of the 7, all but Koki Hirota, foreign minister (1933-6), were military men. These were Gens. Hideki Tojo, Kenji Doihara, Seishiro Itagaki, Heitaro Kimura, Iwane Matsui, and Akira Muto. All the other accused were condemned to imprisonment for life, except Mamoru Shigemitsu, foreign minister (April 1943-April 1945), who was sentenced to 7 years' imprisonment, and Shigenori Togo, foreign minister under Tojo, sentenced to 20 years' imprisonment. The president, expressing an opinion differing in certain ways from the majority judgment, said that the crimes of the Japanese accused were far less heinous, varied, and extensive than those of the Germans accused at Nuremberg. He expatiated on the implications of the Jap. Emperor's responsibility. The authority of the Emperor (he stated) was proved beyond question when he ended the war on 14 Aug. 1945. The 7 Jap. leaders who were condemned to death at the trial were hanged on 23 Dec.

**Japanning** was originally the art of lacquering (q.v.) as practised by Japanese and Chinese. The original Jap. lacquers were derived from the sap of *Rhus vernicifera* and were hard, tough, durable, and very brilliant. The name became used to describe the application of coloured varnishes, but more particularly the black japans which consisted of asphaltum and linseed oil thinned with turpentine (q.v.). Whilst air drying types are available, J. is mainly carried out by a stoving process. At one time, Japan of this type was used extensively on fabricated metal articles such as bicycle frames, but it is now usually used only on cheap metal objects such as deed-boxes, trays, screws, etc. Its place is being taken by stoving paints (see **PAINTS**).

**Japheth**, youngest son of Noah (Gen. v. 32) or second (Gen. ix. 24), the father of one of the 3 great divs. of the human race (see **ETHNOLOGY**). The name Japhetic has been applied loosely to the European stock now called Aryan or Indo-Germanic.

**Japonica**, see **CHAENOMELES**.

**Japurá**, riv. of Brazil. It rises in the Colombian Andes as the Caquetá and flows 400 m. E. into Brazil, joining the Amazon near Tofé. Combined length, 1500 m.

**Jacques-Daleroze**, Émile (1865-1950), Swiss musical educationist, b. Vienna. Studied under Fuchs and Bruckner in Vienna, and under Delibes in Paris. Prof. of music, Geneva Conservatoire, 1892, where he evolved his educational method, the *Gymnastique rythmique*, a system of musical and gymnastic training which has won world-wide fame. Institutions for teaching his system were opened at

Hellerau, near Dresden, in Geneva (his H.Q.), Paris, and London. He was also a composer, but his works have not maintained themselves. He wrote a number of books on his system, and also *Souvenirs*, 1942, and *La Musique et nous*, 1945.

**Jargoon** (or 'Matura Diamond'), name of certain varieties of zircon, which can be cut as gems, but are not of the reddish colour of the jacinth. Js are usually smoky or colourless.

**Jarmo**, prehistoric vil. site near Suleimaniyah, Iraq. Excavation by an Amer. group (Chicago Univ.) in 1952-5 revealed important pre-pottery neolithic culture, dated by radio-carbon to c. 4750 BC, and thus the earliest then found in the Near E.

**Jarnac**, Fr. tn in the dept of Charente, on the R. Charente. Louis I, Prince de Condé (q.v.), was killed here (13 Mar. 1569) in the victory of the Duke of Anjou, later Henry III (q.v.), over the Huguenots. Brandy is made here. Pop. 3900.

**Jarnach**, Philip (1892- ), composer, of Sp. and Ger. parentage, b. Naisy, France. Educ. in music under Rislér, for piano, and under Lavignac for musicology; but largely self-taught. Taught at the Zurich Conservatory, 1918-21, and later in Berlin. Disciple of Busoni, and cosmopolitan rather than national. Apart from composing various works of his own, he completed Busoni's unfinished opera *Doktor Faust*.

**Järnefelt**, Armas (1869- ), Finnish composer, b. Viipuri (Viiborg). Studied under Wegelius, Busoni, and Massenet in Helsingfors, Berlin, and Paris respectively. Became director of the opera and head of the conservatoire at Viipuri, and then at Helsingfors, later becoming court conductor in Stockholm. Has written orchestral and choral music.

**Jaro**, tn of the prov. of Iloilo, Philippine Is., 4 m. NW. of the cap., Iloilo. It has a large trade in sugar and agric. produce. J. is actually a part of Iloilo city. Pop. 16,947.

**Jaroměř**, Czechoslovak tn in the region of Hradec Králové (q.v.), on the Labe (see **ELBE**). Pop. 7300.

**Jaroslav**, or Jaroslavl, see **JAROSLAVL**. **Jarosław**, tn of Poland, in Rzeszów prov., on the San, 30 m. E. of Rzeszów (q.v.). It went to Austria in 1772, but was returned to Poland in 1919. There are flour and timber industries, and manufs. of metal goods. Pop. 20,000.

**Jarrah**, or *Eucalyptus marginata*, also known as the mahogany gum-tree. It is indigenous to SW. Australia, and is much valued on account of its wood, which is used in building and furniture-making.

**Jarrow**, industrial tn and municipal bor. in the co. of Durham, England, situated on the R. Tyne, about 6 m. E. of Newcastle upon Tyne, 4 m. SE. of S. Shields. Although J. was probably occupied under the Romans, the name is derived from a Saxon word meaning 'marsh' or 'fen'—the marsh being J. Slake (corrupted from J.'s Lake), an estuary of the Tyne to the E. of the tn. The Venerable Bede spent

the last 50 years of his life in the monastery founded by St Benedict Biscop at J., and there wrote his *Historia Ecclesiastica Gentis Anglorum*. At this monastery was probably written the *Codex Amiatinus*, a MS. of the Vulgate copied early in the 8th cent. The monastic ruins may be seen near St Paul's Church, once part of the original foundation. From the time of Bede until the 19th cent. little is known of J., but during the earlier part of that cent. coal-mining was begun, salt was panned, and the shipbuilding industry was estab. at J. by the brothers Palmer. From their yard was launched the first practicable iron screw collier (1852), and warships of all classes were constructed. Iron works were estab. alongside the shipyards, but these industries, in spite of their initial success—900 ships of a total displacement of 2 million tons were launched from J. until 1933—later declined. Finally J. was included in the special area of Durham and Tyneside, and the site of the Palmer works was purchased by the Special Areas Commissioner. New industries began to be set up, particularly through the efforts of Sir John Jarvis, M.P. In 1946 the Tyne Tunnel Act was passed to authorise the construction of 3 tunnels under the Tyne between J. and Wallsend, a 1230-ft long pedestrian tunnel, with a twin tunnel alongside for cyclists, and a vehicular tunnel, quite separate from the other two. Excavation began in 1947 and the N. (Howden) and S. (J.) workings were joined in 1949. A redevelopment plan for the older part of the tn was adopted by the council in 1944. The new J. is essentially part of industrial Tyneside, and the whole area is well served by land, sea, and air communications. With the N. sea on one side and the moors on the other the area has an exceptionally clear atmosphere. Present industries include sectional steel rolling, steel casting, special refined iron manuf., ship repairing, oil installation, slag crushing and preparation for road-work, patent wagon axle-box manuf., light electrical accessory manuf., bakers' oven and ancillary equipment production, metal box manuf., general engineering products, and paper and chemical-making. J. gives its name to a parl. div. returning 1 member to the House of Commons. Pop. 28,930.

**Jasher** (R.V. Jasher), Book of, or Book of the Upright, one of the most important of the lost works of the Jews. It is twice quoted in the canonical books of the O.T., and it is noteworthy that each quotation is poetical, Joshua x. 13 telling how Joshua commanded the sun to stand still over Gibeon and the moon over Ajalon and David's lament over Saul and Jonathan, 2 Sam. i. 18. From these it is deduced that it was a collection of songs, more secular than religious, dealing with the exploits of Israelitish heroes. Various Talmudic authorities have attempted unsuccessfully to identify it with one or other of the early canonical books. It was a separate production of the post-Solomonic period, containing, however, many poems

of earlier date such as occur in Exodus, Judges, Samuel, etc. During the later Middle Ages 3 Jewish works appeared claiming to be the lost B. of J., and in 1751 there appeared an astounding forgery purporting to be a trans. of it into English by Alcuin.

**Jasione**, genus of herbs, family Campanulaceae; about 12 species are found in Europe and in Mediterranean dists., one of them *J. montana*—Sheep's bit—being native to Britain, growing in grassy places with blue flowers of fine shades.

**Jasło**, tn of Poland, in Rzeszów prov., on the Wisłoka, 31 m. SW. of Rzeszów (q.v.). It is the centre of an important petroleum and natural-gas producing dist. Pop. 5000.

**Jasmin**, Jacques (1798–1864), Provençal poet, b. Agen, whose real name was Jacques Boé. His first vol. of poems, called *Papillotes* (Curl Papers), was pub. in 1825, containing some verse in French, but mostly in the Provençal 'patois.' These 'patois' poems are generally in the form of short epic narratives, both grave and gay, dealing with familiar scenes of peasant life which he himself often recited. J. is now generally considered the direct forerunner of Mistral and the *Félibrige*. Four successive vols. of the *Papillotes* were pub. during his life-time and contained the famous poems 'Charivari', 'My Recollections', 'Martha the Simple', 'The Twin Brothers', 'The Blind Girl of Castel-Cuillé' (trans. into English by Longfellow, and set to music by Coleridge-Taylor, 1901); and 'Francoetto' (trans. into English by J. D. Craig in his *Poets and Poetry of the South of France*, 1866). In 1852 J.'s verse was crowned by the Fr. Academy. See C. A. Sainte-Beuve, *Portraits contemporains*, 1870; F. De Montrond, *Jasmin Poète* (2nd ed.), 1876; J. Andrieu, *Jasmin et son Œuvre*, 1881; J. Smiles, *Jasmin. Barber. Poet, Philanthropist*, 1891; P. Mariéton, *Jacques Jasmin*, 1898.

**Jasmine**, or **Jessamine**, name applied to *Jasminum*, a genus of Oleaceae, of some 200 shrubs, most of which bear sweet-scented flowers followed by a fruit which is vertically divided in two. *J. officinale*, the common J., grows in Europe and Asia. *J. nudiflorum* is the Chinese winter-flowering J. There are also *Gardenia florida*, a species of Rubiaceae, known as Cape J.; *Gelsemium sempervirens*, a species of Loganiaceae, the Carolina J.; *Plumeria rubra*, a species of Apocynaceae, the J.-tree; *Calotropis procera*, an asclepiadaceous plant, the Fr. J.; and *Androsace chamaejasme*, the Rock J.

**Jason**, leader of the Argonauts (q.v.), son of Aeson, King of Iolcus. His half-brother, Pelias, drove him from the kingdom, and he was educ. by the Centaur Chiron. Pelias was warned by oracle against the man *with one sandal*. When J. came to claim his kingdom he entered the market-place with one sandal, and Pelias, recognising the omen, sent him to seek the golden fleece. J., by the help of Medea, secured the fleece and returned with her in the *Argo*. Medea, pretending



to restore youth to Pelias, persuaded his daughters to dismember him and place the members in a cauldron. J. and Medea were expelled. Finally J. forsook Medea for Glauce. Medea in revenge slew the new bride and her own children by J.

**Jason**, Gk name commonly adopted by Jews in the Hellenistic age, as an equivalent of Heb. Joshua. There are sev. J.s mentioned in Maccabees, and one in Acts and Romans. (1) J. of Cyrene, a Hellenistic Jew who probably lived in the second half of the 2nd cent. BC, and was the author of a hist. of the times of the Maccabees down

which it is derived by decomposition. Through the admixture of oxides and silicates of iron its colours vary from red, brown, yellow, to green. The J. of antiquity was apparently a brilliant green translucent form, and the name was evidently applied to forms of chaledony (q.v.). The ribbon J. of Siberia has well-marked red and green stripes. Egyptian J. usually occurs in brown nodules in the Nile valley and Libyan desert. A rare form of the mineral is termed porcelain J., distinguished by minute holes and a multiplicity of cracks; it has evidently been so altered by being baked *in situ*.



Canadian Government

#### MALIGNE LAKE, JASPER NATIONAL PARK

to the victory over Nicanor (175-161). (2) The second son of Simon II. By bribing Antiochus Epiphanes he managed to usurp the high priesthood of his brother, Onias III (Antioch II). Another bribe enabled him to set up a gymnasium in Jerusalem and to enrol its inhab. as 'citizens of Antioch.' He d. in exile (2 Macc. iv, v). (3) The son of Eleazer, sent by Judas to Rome (1 Macc. viii. 17). He is probably the J. mentioned as the father of Antipater (1 Macc. xii. 16). (4) J. of Thessalonica, the host of St Paul in that city, his surety with the magistrates (Acts xvii. 1), and, according to tradition, Bishop of Tarsus. He may be the J. of Rom. xvi. 21, Paul's 'kinsman.'

**Jasper**, crypto-crystalline form of silica, usually opaque, through contained argillaceous matter. It is related to flint, chert, and chaledony, and is found in veins and cavities in igneous rocks from

**Jasper Park**, largest national park in the world, situated in N. Alberta, Canada, estab. in 1907, area 4200 sq. m. The park lies on the main line of the Canadian National Railways Transcontinental Line and is easily accessible from Banff or Edmonton by bus. J. P. is named after Jasper Hawes, trader and interpreter with the NW. Co., who built a trading post within the present park in about 1813. It is the home of the famous Columbia Ice Fields. J. P. offers unlimited scope for mt climbing. The Alpine Club of Canada frequently holds its ann. camp in Jasper National Park, which has become a popular skiing centre during the winter months. The all-year resort of Jasper has a permanent pop. of approximately 2000.

**Jaspers, Karl** (1883- ), Ger. philosopher and psychiatrist, b. Oldenburg, son of Karl J., a bank director. He was educ.

at the Humanistisches Gymnasium, Oldenburg. He became a *Privatdozent* at Heidelberg in 1913 and prof. there in 1916. He has been prof. of philosophy at Basel Univ. since 1948. During the Second World War J. never made the slightest concession to the Nazis and courageously upheld the great traditions of W. civilisation, symbolised for him by such names as Goethe, Jacob Burckhardt, Kierkegaard, and Nietzsche. The address which J. delivered on the occasion of his being awarded the Goethe Prize of the city of Frankfurt (Aug. 1947) indicates his unequivocal search for truth and his profound understanding of the spiritual and moral needs of our age. This is exemplified in his book *Von der Wahrheit*, 1948. His other works are *Psychopathologie*, 1913, 1946, *Psychologie der Weltanschauung*, 1919, 1926, and *Philosophie*, 1932. See E. L. Allen, *The Self and its Hazards: an Introduction to the Thought of Karl Jaspers*, 1949.

**Jassy** (Iasi, Yassy), cap. of prov. of Iasi, Rumania, 5 m. W. of the R. Pruth and the Russian frontier. It was nearly destroyed by fire in 1822, but was rebuilt on a modern plan. It is the seat of the Gk Orthodox metropolitan of Moldavia and of a Rom. Catholic archbishop, and has a univ. founded 1864. J. has a trade in petroleum, salt, metals, timber, cereals, fruit, wine, and cattle. Here was concluded the peace between Turkey and Russia in 1792. From 1565 to 1862 J. was the cap. of Moldavia. In the First World War, when much of Rumania fell to the Central Powers, the Rumanian Court remained at J. throughout the period of these reverses. In the Second World War, in the course of the Russian offensive against Ger. and Rumanian forces launched on 20 Aug. 1944, the second Ukrainian Group under Gen. Malinovsky attacked the strong positions covering J., which fell to them on 22 Aug. after a 3-day battle which broke the Axis line to a width of 75 m. and a depth of nearly 40 m. between the Siret and Pruth. Pop. (1948) 94,000.

**Jastrowie** (Ger. Jastrow), tn of Poland, in Koszalin prov., 60 m. SSE. of Koszalin (q.v.). Until 1945 it belonged to Prussia. It has woollen mills and a trade in agric. produce. Pop. 4000.

**Jászapati**, tn of Hungary, in Szolnok co., 22 m. N. of Szolnok (q.v.). It has a trade in cereals, wine, horses, and swine. Pop. 12,200.

**Jászberény**, tn of Hungary, in Szolnok co., on the R. Zagyva, 25 m. NW. of Szolnok (q.v.). It is said to have been once the seat of Attila (q.v.). There is a textile industry, and a trade in cereals, wine, and live-stock. Pop. 35,000.

**Jātaka**, name used to designate the legends which recount the 550 incarnations of Buddha. These fables are widely disseminated throughout India, and occur in various disguises in the folklores of nearly all European countries. See V. Faushöll (ed.) and T. Rhys Davids (trans.), *The Jātaka, with its Commentary*, 1877-91, and *Buddhist Birth Stories*,

1880; E. B. Cowell, *The Jātaka*, 1895; J. J. Meyer, *Twice Told Tales*, 1903.

**Jātiva** (anct *Saetabis*), Sp. tn in the prov. of Valencia. It has an anct castle and a vast Gothic church. The Borgia family (q.v.) originated here, and José Ribera (q.v.) was b. here. Famous in Rom. times for its linen, it is to-day a mkt tn with a trade in wine. Pop. 18,100.

**Jatropha**, genus of Euphorbiaceae, occurs in tropical and subtropical America. There are 160 species in all. *J. podagrica*, Guatemala Rhubarb, with a thick swollen stem, is often cultivated in greenhouses. *J. curcas*, Physic Nut, is cultivated for its seeds which contain a purgative oil, also used in soap-making.

**Jats**, people of NW. India and Pakistan. They form a considerable portion of the pop. of E. Punjab, Rajputana, and the adjacent area of Uttar Pradesh. Two former states of Rajputana—Bharatpur and Dholpur—were under Jat rulers. Hindu legends seem to point to a prehistoric occupation of the Indus valley by the people. The J. are exceptionally able agriculturists and cattle breeders. They are dark in colour, and have regular features. They are not necessarily Hindu, Sikh, or Muslim.

**Jauer**, see JAWOR.

**Jauja**, or Atanjauja, tn and resort on the riv. of the same name, in the dept of Junin, central Peru, 115 m. NE. of Lima. Silver mines occur in the prov. Flour, potatoes, and lumber are the other main products. Pop. 8300.

**Jaumave**, NE. tn and com. in the prov. of Tamaulipas, Mexico, about 30 m. SW. of Ciudad Victoria. Large quantities of ixtle fibre are grown in the J. valley. Cereals and live-stock are raised. Pop. 2000.

**Jaundice**, or Icterus, yellow colouration of the skin and mucous membranes due to the presence of abnormal quantities of bilirubin in the blood (see BILE). Bilirubin is a product of the breakdown of blood haemoglobin. This breakdown normally occurs in the liver, the iron of the haemoglobin being retained and the bilirubin being excreted in the bile (see LIVER). J. therefore is a symptom either of failure of excretion of bile, in which case the retained bile is reabsorbed into the blood stream, or of abnormal intravascular breakdown of the red corpuscles, or of acute destructive conditions of the liver liberating into the blood stream the bilirubin present in the liver cells. *Obstructive J.* is due to failure of excretion of bile owing to obstruction of the hepatic ducts or of the common bile duct by gallstones (see CALCULUS), tumour, stenosis, or inflammation. In obstructive J. the urine becomes dark orange or wine coloured and the stools clay-coloured. *Catarrhal J.* is an inflammatory condition of the hepatic ducts, caused as a rule by a virus infection, and is sometimes epidemic. The inflammatory exudate blocks the hepatic ducts, preventing the excretion of bile from the liver. *Catarrhal J.* is therefore of obstructive origin. *Haemolytic J.* is the name given

to J. resulting from any excessive intravascular destruction of the red corpuscles. In these cases, not being obstructive, the urine and stools do not alter in colour. *Acholic J.*, a condition often familial in which the red corpuscles are excessively fragile. In this form of haemolytic anaemia, J. is intermittent and usually mild. *Icterus neonatorum* is a normal physiological haemolytic J. occurring in infants from 3 to 14 days after birth. It is due to the destruction of foetal red corpuscles. *Icterus gravis neonatorum* is a severe condition of haemolytic J. in the new-born resulting from a serological incompatibility between maternal and foetal blood and the consequent destruction of foetal red corpuscles (see RHESUS FACTOR). *Toxic J.* is a condition of acute atrophy or necrosis of the liver caused by the action of toxic substances, such as chloroform or phosphorus, or micro-organisms (see YELLOW FEVER). *Toxic haemolytic J.* may also occur in septicaemia due to certain micro-organisms or their toxins, e.g. *streptococcus haemolyticus*, which destroy red corpuscles within the blood stream.

Jaunpur, city of Uttar Pradesh state, India, situated on the R. Gunti. It was originally the cap. of a Muslim kingdom, and contains many very fine mosques of outstanding architectural interest, built to a considerable extent with the stonework of former Hindu and Jain temples. The stone bridge across the riv., built between 1564 and 1568, is also remarkable.

Jáuregui y Aguilar, Juan de, Chevalier de Calatrava (c. 1570-c. 1641), Sp. poet and painter, b. Seville. He visited Rome (1607), and produced a verse trans. of Tasso's *Aminia*. His *Rimas* appeared in 1618 and *Discurso poético* in 1623, assailing the Gongoristic movement; yet Gongora's style influenced his *Orfeo*, 1624, and especially his trans. of Lucan's epic, *Farsalia*, 1648. He painted a well-known portrait of Cervantes, preserved at the Museum of Madrid. See J. Jordán de Urries, *Biografía y estudio crítico de Jáuregui*, 1899.

Jauréguiberry, Jean Bernard (1815-87), Fr. admiral who served with distinction in the Franco-Prussian war. He was b. at Bayonne, entered the navy (1831), and subsequently served in the Crimea and in China. He was minister of marine from 1879 to 1880, and from 1882 to 1883.

Jaurès, Jean Léon (1859-1914), Fr. Socialist and man of letters, b. Castres. In 1883 he was appointed to the chair of philosophy at the univ. of Toulouse; but he resigned his professorship on his election in 1885 to the Chamber of Deputies. He embraced the cause of the miners in the Carmaux strike. He became the recognised Socialist leader in the Chamber in 1893, and was one of the chief champions of Dreyfus. In 1902 J. became vice-president of the Chamber. His chief work is the *Histoire Socialiste, 1789-1900*, pub in 1901. He was a fervent advocate of world peace, and in July 1914 he proposed the resolution, carried at a Socialist conference in Paris, in favour of a general

strike to prevent war. This caused a good deal of antagonism to J., and resulted in his assassination 2 weeks later. See C. Rappoport, *Jean Jaurès: l'Homme, le Penseur, le Socialiste*, 1915; L. Lévy-Bruhl, *Quelques Pages sur Jean Jaurès*, 1921, and lives by G. Téry, 1915; L. Soulo, 1921; L. Lévy-Bruhl, 1924; J. Jackson, 1943.

Java, fourth largest is. in the Greater Sundas, Indonesia; situated S. of Borneo, across the J. Sea. It is the most important is. in Indonesia culturally, politically, and economically. J. is 650 m. long and 125 m. at its greatest width; area



E.N.A.

PADDY FIELD

48,842 sq. m. It is of volcanic origin, with mt ranges (including some active volcanoes) running E.-W. and rising to 12,060 ft in Mt Mahameru. There are numerous torrential rivs., mostly unnavigable, most important of which are the Solo and Brantas, used for artificial irrigation. There is a highland region in the W., with vegetation generally luxuriant. The forests produce teak, casuarina, and sago palm. Agric. products include cinchona (most of the world's supply), rubber, tea, rice, coffee, and tobacco. Mineral resources include oil, sulphur, gold, and phosphate. Industries include textile mills, tanning, metalwork, and batik. There are some well-developed road and railway services. The climate is tropical, but healthy in the highlands. Cap. Jakarta (formerly Batavia). Other trade centres are Jogjakarta, Semarang, Solo, and Surabaya. 'Java man' (*Pithecanthropus erectus*) was found near Trinil in 1891. Very dense pop. of c. 40,000,000, comprising Malay, Sudanese, Madurese,

Chinese, and Arabs. Religion is mainly Muslim, which succeeded Hindu and Buddhist influence in the early 16th cent. The Dutch arrived in 1596, and estab. Batavia in 1619. J. was occupied by the British, 1811-16, and by the Japanese in the Second World War. It was divided between the Rep. of Indonesia and the Dutch-sponsored autonomous states in 1945; united as 3 provs. of Indonesia in 1950.

**Java Sea**, situated between Java and Borneo, and stretches from the W. of Celebes to the E. of Sumatra.

**Java Sparrow**, see **RISE BIRD**.

**Javari**, trib. of the Amazon, joining it near the Tahatinga after a N.E. course of 600 m. It forms part of the boundary between Brazil and Peru, and is navigable.

**Javea**, or **Jabea** (anct *Xávea*), Sp. tn in the prov. of Alicante. It produces wines, lemons, oranges, and muscatel raisins. Pop. 6400.

**Jaw**, bones forming the framework of the mouth. In man the upper J. is termed the superior maxilla; the lower J. the inferior maxilla or mandible. The latter, the largest bone of the face, consists of a horizontal portion and 2 upright portions, called the rami. Both J.s bear teeth (q.v.). The closing and opening of the J. is effected by 4 pairs of muscles, 2 attached to the outer, and 2 to the inner side of the rami of the lower J.

**Jawor** (Ger. *Jauer*), tn. of Poland, in Wrocław prov., 39 m. WSW. of Wrocław (q.v.). Until 1945 it was in Lower Silesia (q.v.). In the 14th cent. it was the cap. of a principality. There are textile, metal, and leather industries. Pop. 10,000.

**Jaworow**, see **YAVOROV**.

**Jaworzno**, tn in the prov. of Cracow (q.v.), Poland. There are petroleum wells, coal-mines, and zinc-smelting works. Pop. 17,500.

**Jay, Harriett** (1863-1932), authoress and actress, b. London. She was brought up by Robert Buchanan, the Scottish poet and writer, who married her elder sister. She collaborated with Buchanan in sev. of his works, and pub. independently *The Queen of Connaught*, 1875, *Madge Dunraven*, 1879, *Two Men and a Maid*, 1881, *A Marriage of Convenience*, 1885, and *The Life of Robert Buchanan*, 1903. As an actress she also won great distinction.

**Jay, John** (1745-1829), Amer. politician and lawyer, b. New York. He drew up the constitution of New York state in 1777, and was appointed judge. He became president of the Continental Congress in 1778. In 1789 he was made first chief justice of the Supreme Court. In 1794 he drew up a treaty, called the J. Treaty, whereby the inland trade between the U.S.A. and Brit. N. America was properly organised in the interests of both countries. J. became Governor of New York in 1795. He was a very able politician, especially in the field of international politics. His pub. writings include *Correspondence and Public Papers of John Jay*, and *Diary, During the Peace Negotiations of 1782*. Lives have been

pub. by W. Jay, 1833, W. Whitelocke, 1887, G. Pellew, 1890, and F. Monaghan, 1935.

**Jay, William** (1769-1853), Eng. Non-conformist minister, b. Tisbury, Wilts, England. Early in life he worked as a mason. Cornelius Winter had him educ. for the ministry. His devotional writings had a vast circulation in England and America. See G. Redford and J. A. James (ed.), *Autobiography of William Jay*, 1854.

**Jay, William** (1789-1858), Amer. abolitionist, b. New York. He became a judge in 1818. He founded the Amer. Bible Society (1816), but the greater part of his energies was devoted to anti-slavery interests. The Anti-Slavery Society had in J. one of its most fervent and eloquent members. In 1833 he pub. the *Life and Writings of John Jay*. See B. Tuckerman, *Jay and the Constitutional Movement for Abolition*, 1893.

**Jay**, or *Garrulus glandarius*, species of the subfamily (Garrulinae and of the crow family (Corvidae), and a native of Europe, while other species of the same genus are found in India and other parts of Asia and in Japan. In the New World the blue J.s (*Cyanocitta*) are found in N. America and *Cyanocorax* in Central and S. America, these latter birds being more blue than the common J. In England the common J. has become rare owing to persecution, and this is the case in Scotland and in some parts of Ireland. It is characterised by a crest of black and white feathers, a black tail, and white and black bars on the wing coverts, its body being a brownish colour on the upper surface and lighter underneath. It has wing-patches of blue. The J.s are sly and retiring in their habits, and have a screeching cry with the power to vary it by mimicking other birds. They feed chiefly on snails, insects, worms, and nuts. They hide their nests in trees with thick foliage and lay about 6 or 7 eggs at a time.

**Jayadeva**, Hindu poet, best known as the author of the mystic poem, *Gita-govinda*, the tale of the god Krishna and his love for the shepherdess Radha, which is the theme of many Indian artists, musicians, and dancers. His date is disputed: Lassen (q.v.) believed he fl. in the 12th cent. He is considered the finest lyric poet of India. See Sir W. Jones, *Poems, consisting chiefly of Translations from the Asiatic Languages*, 1777; Sir E. Arnold, *The Indian Song of Songs' from the Gita Govinda of Jayadeva*, 1875, and *Indian Poetry*, 1881.

**Jayhun**, see **AMU-DARYA**.

**Jazz** originated shortly before 1900, as a result of the fusion of a number of Negro folk-music idioms with European influences and instrumentation. The content of original African material, stemming from the direct influence of the emancipated slave, is far smaller than might be expected, whereas the vocal aspect as expressed in work-songs, spirituals, and ballads retains a strong line in subsequent developments. Since the A.-S. language prevails (with only a smattering of French,

Spanish, and Creole intruding) in all vocal J., it is not surprising to find an appreciable amount of Eng., Scottish, and Irish ballad influence in the pre-J. development period. The strongest lines were those of 'blues' and 'ragtime': the former persists to-day, mostly in instrumental form, whereas ragtime, a piano offshoot of the earliest forms, has almost disappeared into antiquity. Both types depend on a strict chord structure; the blues generally consist of a 12-bar verse (or chorus) divided into 3 sections of 4 bars each, in which the first and second sections repeat themselves. Ragtime is based on 16-bar themes. Most J. compositions of later date revolve round these 2 bases.

Geographically J. had its origins in the S. states of America, S. of the Mason-Dixon line; hence the term 'Dixieland' applied to white J. style. The focal point of these musical activities became New Orleans, where J. evolved as the standard form of entertainment in the sporting and gambling dens. Thence it spread northwards up the Mississippi to Chicago towards the end of the First World War. By 1925 there was a strong faction in New York, and Europe had already had its first taste of the new music. Curiously it took J. more than another decade to find its footing on the W. coast. Instrumentally J. bands varied considerably over the years, from the early brass bands of 1880-90 to the classic instrumentation of 2 cornets, clarinet, trombone, guitar or banjo, bass or tuba, and drums, as used in New Orleans from 1910 to 1920. This voicing is significant, not only in the direct transition from choral music (the clarinet taking the place of the descant or contrapuntal extemporisation), but also in its close affinity to the written music played by brass bands. The piano was added later, when J. band work extended from street functions and funerals to dance halls. All voices of the saxophone family were used intermittently, especially amongst the less pure bands of the early period. Chicago style J. of the 1920-30 period admitted solo alto and tenor saxophones (more commonly the latter), and these instruments have retained their places in J. to-day.

Extemporisation is a frequently misunderstood term as applied to J. Initially all J. must be improvised, both collectively and by soloists. By frequent playing and rehearsal the more competent bands arrive at an unwritten or 'head' arrangement, which may continue unaltered in a band's repertoire for sev. years. This type of arrangement imposes a harmonic restriction on the collective improvisation, but leaves the soloist free to extemporise both melodically and rhythmically against the harmonic pattern estab. by the band. Syncopation presents a vexed question. Technically this is a device resorted to by white musicians in trying to emulate the rhythmic drive of the coloured originators of J. Negro groups tend to play on the beat; that is to say the rhythm section establishes a beat, to which they adhere. The melody instruments, collectively or

individually, can place their rhythmic accents where they please relatively to this foundation. Intonation plays another important part in J. From the inception of the J. idiom much emphasis has been correctly laid on what is known as 'hot' tone. Originally this was a Negroid distortion of the correct instrumental tone, as applied to all reed and brass instruments. 'Hot' tone includes not only the admission of excessive vibrato but also the distortion of the pure sound—generally a thickening of the tone—which has been widely practised in J. by both coloured and white musicians. Its origin lies possibly in the poor quality of the instruments played by the pioneers more than in their inability to blow their instruments correctly. The reluctance of classical experts to accept J. is closely attributable to this factor.

The commercialisation of J. by environment in New York and other large cities of the U.S.A. brought about the peculiar trend known as 'swing,' a word first used by musicians to denote rhythmic urge. Swing existed as early as 1924 in a few large coloured orchestras, but popularity was only achieved when sev. large white bands were formed, playing arranged music with extemporised solos. These usually consisted of 4 trumpets, 3 trombones, 4 reeds, 4 rhythm, but later enlarged to as many as 10 brass and 6 reeds. The music they played relied for its effect on a syncopated attempt at dynamics, with exhibitionism underlying most of the solo work. The world-wide interest in this distorted aftermath of J. was responsible for attracting public attention to the pure form. Swing became fashionable in 1935, and absorbed most of the best J. instrumentalists, demanding a high standard of performance and attracting a generation of younger musicians, who had conventional training of the highest order. Many of them were to form the nucleus of a faction which broke away from the highly disciplined work to be found in swing bands. They reverted to J. in a modern form, from 1940 onwards, before the demise of swing. The resultant music was a highly technical, classicalised version of improvised J., sometimes known as 'bebop.' It relied on strong contrapuntal developments, and has, over a period of 15 years, almost eliminated the functions of the basic rhythm section which was an essential part of the classic J. form. As in swing, technique commands higher emphasis than feeling, although a considerable degree of improvisation remains. Instrumentally the change has brought about the complete replacement of the clarinet by the alto and tenor saxophones. Whilst the idiom is kept very much alive by constant changes, there are many who regret the excessive sophistication which is rapidly changing J. from a rumbustious and rebellious folk and dance music to something akin to the classical form known as chamber music. See S. Traill and G. Lascelles (editors), *Just Jazz*, 1957; L. Feather (editor), *The Encyclopedia Yearbook of Jazz* (ann.).

**Je Bail** (anot *Byblos*), see SYRIA, *Archaeology and Art*.

**Jeanes, Anna T.**, see MASS EDUCATION.

**Jeanne d'Albret** (1528-72), Queen of Navarre, the daughter of Henri, King of Navarre, Duke of Albret and peer of France, and Marguerite, sister of the Fr. king, Francis I. She married Antoine de Bourbon, Duke of Vendôme, and their son Henri became Henri (Henry) IV, King of France.

**Jeanne d'Aro**, see JOAN OF ARO.

**Jeanneret, Charles Edward**, see LE CORBUSIER.

**Jeannette**, bor. of Westmoreland co., Pennsylvania, U.S.A., 21 m. ESE. of Pittsburgh. It manufs. glass, rubber, metal products, beverages, and cement, and there are coal and shale deposits. Pop. 16,170.

**Jeanes, Sir James Hopwood** (1877-1946), mathematician, b. Southport, son of W. T. Jeanes, a parl. journalist. Educ. Merchant Taylors' School; Trinity College, Cambridge; 2nd wrangler, 1898; Smith's prizeman, 1900. Fellow of Trinity, 1901; univ. lecturer in mathematics, 1904. Prof., applied mathematics, Princeton Univ., 1905-9. Stokes lecturer in applied mathematics, Cambridge, 1910-12. Awarded Adams prize in 1917 for essay *Problems of Cosmogony and Stellar Dynamics*. Secretary to Royal Society, 1918-29. Research associate, Mt Wilson Observatory, 1923. President, Royal Astronomical Society, 1925-7. Knighted, 1928. O.M., 1939. President, Brit. Association, 1934. One of his first scientific investigations was that resulting in the proof of Maxwell's law governing the distribution of velocities among molecules, his studies in this field being pub. in 1904 as *The Dynamical Theory of Gases*. At Princeton in 1906 he pub. his *Elementary Treatise on Theoretical Mathematics*, and, 2 years later, his *Mathematical Theory of Electricity and Magnetism*, the various eds. of which afford an indication of the development of the Quantum Theory, on which latter, in 1914, he made a report to the Physical Society entitled *Radiation and the Quantum Theory*. But his most impressive work was that which he accomplished in the sphere of cosmogony, on which he pub., besides the essay above, *Astronomy and Cosmogony*, 1928. In this field his most striking achievement was his explanation, following Chamberlin and Moulton, of planets and their satellites as being due to tidal forces raised in a star by the close passage of another star. The completeness of these mathematical investigations destroyed the nebular hypothesis of Kant and Laplace. He also threw some light on the conjectural source of stellar radiations and energy. His popular expositions of science enjoyed phenomenal sales—less surprising in view of the attractive style of his treatises, the non-mathematical sections of which may be enjoyed even by the layman. These popular books also include J.'s contentious philosophical deductions from modern science. He stressed the part played by mathematics in science to a degree

scarcely equalled since Pythagoras. Other works: *Atomicity and Quanta*, 1926; *Eos, or the Wider Aspects of Cosmogony*, 1928; *The Mysterious Universe*, 1930; *The Universe Around Us*, 1930, *The New Background of Science*, 1933; *Science and Music*, 1937; *The Growth of Physical Science*, 1947.

**Jebavý, Václav**, Czech poet, writing as 'Otakar Březina' (1868-1929), b. Počátky, S. Bohemia. Vols. of poems: *Secret Distances*, 1895; *Dawning in the West*, 1896; *Polar Winds*, 1897; *Temple Builders*, 1899; *The Hands*, 1901. Essays: *The Music of the Springs*, 1903. Eng. trans. of his poetry have been made by Percy Paul Selver in *A Century of Czech and Slovak Poetry*, 1946, and *Otakar Březina*, 1921.

**Jebb, Sir (Hubert Miles) Gladwyn** (b. 1900), Brit. diplomat, educ. at Eton and Magdalen College, Oxford. He entered the diplomatic service in 1924; served in Teheran and Rome; was appointed counsellor in 1943, and as such attended the conferences of Quebec, Cairo, Teheran, Dumbarton Oaks, Yalta, San Francisco, and Potsdam. He played a prominent part in the estab. of U.N.O., and became popularly known during his term as U.K. permanent representative to the U.N. 1950-4. He was knighted in 1954 and became Brit. ambas. to France.

**Jebb, Sir Richard Claverhouse** (1841-1905), Scottish classical scholar and writer, b. Dundee. Educ. at Charterhouse and Trinity College, Cambridge. He was prof. of Greek at Glasgow Univ. from 1875 until 1889, when he was appointed regius prof. of Greek at Cambridge. J. was one of the founders of the Brit. School of Archaeology at Athens. In 1891 he became Unionist M.P. for Cambridge Univ. J.'s most outstanding works are his ed. of the commentary on *The Attic Orators from Antiphon to Isaeus*, 1876, and his ed. of the works of Sophocles with trans. and commentary in 7 vols. See Lady Caroline Jebb, *Life and Letters of Sir Richard Claverhouse Jebb*, 1907.

**Jebel-al-Rahma**, see ARAFAT.

**Jebel al-Tur**, see OLIVES, MOUNT OF.

**Jebel Barkal**, see BARKAL.

**Jebel Druse**, see DRUSES and SYRIA.

**Jebel Musa**, see SINAI: 1.

**Jebel-Nur** (mt of light), name given to Mt Hira, a hill a few m. from Mecca, because Mohammed received his first revelation there.

**Jebel Shammar, Shummer, or Shomer**, dist. of central Arabia in the N. of Nejd. It contains 2 granite ridges traversing it from E. to W., one of which is about 6000 ft high. The cap. is Hall. During the Arabian war much fighting took place in this dist., and in 1921 Hall was captured and the dist. annexed by Ibn Sa'ud. Pop. 150,000.

**Jebel Tariq**, see GIBRALTAR.

**Jebusites**, Canaanitish inhab. of Jebus, an earlier name for Jerusalem, until its citadel was captured by David (2 Sam. v. 7 f.).

**Jecooniah**, see JEHOLACHIN.

**Jedburgh**, royal burgh and co. tn of

Roxburghshire, Scotland, situated on Jed Water, 48 m. S.E. of Edinburgh. The name was originally Jedworth, and it is now known as Jethart. The tn is an old one and played a part in the Border wars. The abbey, dating from the 12th cent., was once the church attached to an Augustinian priory founded by David I and reduced by the English during the 16th cent. The old castle was destroyed in 1409, and on its site now stand the remains of a prison. The tn has associations with Mary Queen of Scots, Prince Charles Edward, Burns, and others. It is a woollen manufacturing centre, and has iron foundries. Pop. 4100.

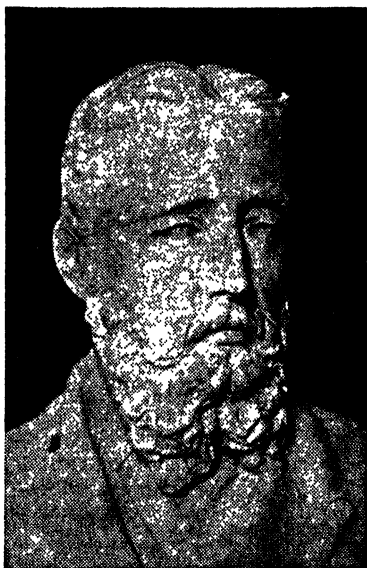
Jedda, Jeddah, or Jiddah, prin. seaport of Hejaz, Arabia, situated on the Red Sea, between 50 and 60 m. W. by N. of Mecca, of which tn it is the port. Consequently the pilgrims bound for that city disembark here, a great number visiting it annually. It exports hides, mother-of-pearl, coffee, and carpets. A municipal council has been set up in the tn. The members are chief officials and persons who are nominated or approved by the King of Saudi Arabia. Subject to the royal approval, resolutions passed by the council become law. On 27 May 1927 Great Britain recognised the complete independence of the dominion of Ibn Saud, King of Hejaz, in a treaty signed at J. The Fr. Gov. raised its consulate at J. to the rank of a legation in 1929. Its example was followed by Great Britain, and Turkey and Holland are also represented, as well as the Soviet Gov. J. has an airport. Pop. about 80,000 or more.

Jedo, or Jeddo, see TOKYO.

Jeejeebhoy, Sir Jamsetjee, Bart (1783-1859), Indian merchant and philanthropist, b. Bombay. He gave hospitals, schools, colleges, and public works. In 1842 Queen Victoria bestowed a knighthood on him, and in 1858 a baronetcy, the first honours of their kind to be bestowed on an Indian. J. became the official leader of the Parsees in India.

Jefferies, Richard (1848-87), naturalist and novelist, b. Coate Farm, near Swindon, Wilts, son of a small farmer. He went to school at Sydenham, then at Swindon until he was about 15, but his most inspiring teachers were his father and a keeper on a neighbouring estate, who made him acquainted with the wonders of nature and taught him to use his powers of observation. Indeed it is said that he really owed his first work of any value, *The Gamekeeper at Home*, 1878, to what he had learned from his close friendship with the Burderop keeper, whom he used to help as a youth. He began life as a journalist on the staff of the *North Wilts Herald* of which he was editor during 1866-7. His letter to *The Times* (1872) on 'The Wiltshire Labourer' brought him into public notice and thereafter he wrote for the *Pall Mall Gazette*, in which appeared his *Gamekeeper at Home* and *Wild Life in a Southern County*, 1879, both afterwards repub. Both these works are full of minute observation and vivid description of country life. They were

followed by *The Amateur Poacher*, 1880, by some considered his best work, *Wood Magic*, 1881, *Round about a Great Estate*, 1881, *The Open Air*, 1885 (with a Brighton and Beachy Head background), and others on similar subjects. Among his novels are *Bevis*, 1882, in which he draws on his own childish memories and which has been described as the best boys' book in the language, and *After London, or Wild England*, 1885, a romance of the future when London has ceased to exist. *The Story of my Heart*, 1883, is an idealised



N.P.G.

RICHARD JEFFERIES  
Plaster cast from a bust by  
Margaret Thomas.

picture of his inner life. *Life of the Fields*, 1884, includes one of his best essays—'Clematis Lane.' Other works are *Hodge and his Masters*, 1880, *Nature near London*, 1883, and *Amarillis at the Fair*, 1881. J. d. after a painful illness, which lasted for 6 years. In his own line, that of depicting with an intimate knowledge of nature all the elements of country life and wild life, plant and animal, surviving in the face of modern civilisation, he has had few equals. *Fields and Hedgerow* was pub. after his death (1889). See lives by E. Thomas, 1909, C. J. Masseck, 1913, A. F. Thom, 1920, and R. Arkell, 1933. See also S. J. Looker (ed.), *Jefferies' England*, 1937; M. Elwin, *The Essential Richard Jefferies*, 1948; S. J. Looker (ed.), *The Nature Diaries and Note-books of Richard Jefferies*, 1948.

**Jeffers, John Robinson** (1887- ), Amer. poet, b. Pittsburgh, Pennsylvania. After studying medicine at the univ. of S. California and forestry at the univ. of Washington, he settled near Carmel on the coast of California, where he lived in seclusion. The tragic and horrible are presented in his work with a kind of moral despair which has caused him to be reckoned one of the most powerful of modern Amer. poets. Of some 20 books of verse which he has pub. among the best known are *Tamar*, 1924, *Roan Stallion*, 1925, *Cawdor*, 1928, *Thurso's Landing*, 1932, *Give Your Heart to the Hawks*, 1933, *Be Angry to the Sun*, 1941, *The Double Ace*, 1948, and *Hungerfield*, 1954. His *Selected Poetry* was pub. in 1938. See R. Gilbert, *Shine, Perishing Republic*, 1936, and study by L. C. Powell, 1940.

**Jefferson, Thomas** (1743-1826), third and one of the greatest presidents of the U.S.A., b. Shadwell, Albemarle co., Virginia, the son of a planter. He was of Welsh origin. A member of the second Continental Congress of the 13 Amer. colonies, he sprang into fame in America's pantheon by writing the Declaration of Independence, which was adopted with only a few slight changes. He was made governor of Virginia in 1779, and narrowly escaped capture by Tarleton. He succeeded Benjamin Franklin as the Amer. envoy to France, and later, when Washington became President of the U.S.A. he made J. secretary of state. It was largely owing to J. that the cap. of the U.S.A. was estab. on the banks of the Potomac R., in what is now the city of Washington, and he himself was afterwards the first president inaugurated there. In 1796 Hamilton was the natural leader of the Federalist party, but John Adams was nominated for the presidency. J., as the leader of the Republican, which afterwards became the historic Democratic party, ran against him. Adams was elected president, and J. vice-president. In 1800 J. once more ran for the presidency with Aaron Burr as his party's candidate for vice-president. J.'s party won, but both J. and Burr had received an equal vote. J., however, was chosen by the House of Representatives on the advice of his old antagonist Hamilton. In 1804 J. was re-elected by an overwhelming majority. The greatest and most far-reaching act of his presidency was the Louisiana purchase, whereby the U.S.A. secured a vast ter. W. of the Mississippi R. some 1,171,931 sq. m. in extent. This purchase completely changed the future hist. of the U.S.A. It paved the way for continental expansion. It made the Mississippi entirely an Amer. owned riv. During J.'s term also the U.S.A. sent an expedition against the Tripoli pirates and stopped their raids, considerably reduced the national debt, and issued the famous embargo act prohibiting the sailing of Amer. vessels for foreign ports while the Brit. and Fr. navies were chasing each other on the high seas.

J. was a statesman of compromises;

for J. the philosopher, in the 18th-cent. sense, was rather a different man from J. as manager of his own large properties and as office-holder. Thus, while he hated slavery and tried to suppress the traffic he remained the owner of 200 Negroes; he was always suspicious of bankers, yet he turned to London for the funds needed for the Louisiana purchase; and he hated political chicanery, yet he must have been aware that a bargain was being struck between his supporters and those of Alexander Hamilton to obtain his election as president. Such compromises, however, are the price of political pre-eminence. Nevertheless the positive and outstanding achievements of J. were very great: in his own state of Virginia, the termination of feudal land tenure, separation of Church and State, the foundation of a programme of free education: in the U.S.A., the public land system, the Bill of Rights, and the Louisiana purchase—besides considerable contributions to the theory of checks and balances among the executive, legislative, and judicial branches of the federal constitution.

J. retired to his home, Monticello, in Virginia, and in his old age founded the univ. of Virginia near Charlottesville. A curious thing about J. is the epitaph he wrote for his own tomb. He, who had held so many high offices at the hands of his countrymen, wrote this: 'Here was buried Thomas Jefferson, author of the Declaration of American Independence, of the Statute of Virginia for Religious Freedom, and Father of the university of Virginia.' He d. on 4 July. A memorial tablet was unveiled to J. in 1933 at Glynceirog, N. Wales, of which vil. his father was a native. He made an important contribution to the revolutionary cause in *A Summary View of the Rights of British America*, 1774. See M. Beloff, *Thomas Jefferson and American Democracy*, 1948; J. Dewey, *Jefferson*, 1948; D. Malone, *Jefferson the Virginian*, 1948 (vol. I of a projected 4-vol. biography).

**Jefferson City**, cap. of Missouri, U.S.A., 110 m. W. of St. Louis. It is a railway centre and port on the Missouri R. in a grain and livestock area with zinc, lead, and clay deposits. It manufs. grain, wood, and dairy products, shoes, clothing, and bricks; there are also printing works. The Capitol, Missouri State Library, and Lincoln Univ. are here. Pop. 25,100.

**Jefferson River**, riv. of the U.S.A. It rises in SW. Montana and finally joins the Madison and Gallatin R.s, the 3 streams forming the Missouri. It is about 200 m. long.

**Jeffrey, Francis Jeffrey, Lord** (1773-1850), judge and critic, educ. at Edinburgh, Glasgow, and Oxford. Meeting for years with little success, either as lawyer or journalist, his opportunity came in 1802, with the founding of the *Edinburgh Review*. Sydney Smith (q.v.) was first editor, but when he moved to London in 1803 J. was placed in charge. Retaining control for 26 years, he raised the *Edinburgh* to the highest rank. In



1806 J. went to London, where he had his famous duel with Moore, so satirised by Byron. In 1830 he was made Lord Advocate, and entered Parliament. In 1834 he accepted a judgeship and a peerage. Among his critical works are *Samuel Richardson*, 1853, and *Jonathan Swift*, 1853. See life by R. Bald, 1925.

**Jeffrey, William** (1896-1946), poet, b. Kirk o' Shotts, Lanarkshire. After studying at Glasgow Univ. he served in France with the artillery in the First World War. In 1920 he took up journalism and became a leader writer and dramatic critic on the *Glasgow Herald*. His poetry has a mystical vein reminiscent of Blake, and marked him as one of the leaders of the modern Scottish Renaissance. The best known of his works are *Prometheus Returns*, 1921, *The Wise Men Come to Town*, 1923, *The Lamb of Lomond*, 1926, *Mountain Songs*, 1928, *The Golden Stag*, 1932, *Eagle of Coruisk*, 1933, and *Sea Glimmer*, 1947. *Selected Poems* with a memoir appeared in 1951.

**Jeffreys of Wem, George Jeffreys, Lord** (1648-89), Lord High Chancellor of England, b. Acton, Denbighshire. In 1668 he was called to the Bar, and in 1683 became Lord Chief Justice. As the records of J.'s life are derived from hostile sources his reputation for injustice and cruelty must be accepted with some reserve. His conduct of the trial of Algernon Sidney is considered to have been fair in general. The action for which J. is most notorious is his presidency of the Bloody Assize (1685), whereby over 300 victims were drawn and quartered, and 1000 sent as slaves to the W. Indian plantations. In opposition to the Long Parliament the Court of High Commission was revived and J. placed at its head (1686). In 1688 J. was the king's chief instrument in securing the committal to the Tower of the 7 bishops. But the fall of James II drew in its train the fall of J.; he fled, was arrested, and d. miserably in the Tower. See Sir E. A. Parry, *The Bloody Assize*, 1929; S. Schofield, *Jeffreys of the Bloody Assizes*, 1937; H. Montgomery Hyde, *Judge Jeffreys*, 1948.

**Jeffries, Ellis** (1872-1943), Eng. actress, b. Colombo, Ceylon. Associated with Cyril Maude at the Haymarket, where one of her greatest successes was in W. H. Davies's comedy *Cousin Kate*. She began her career at 17 in the chorus of the Savoy Opera and played in pantomime and light opera. She then took part in comedy with Charles Wyndham, with John Hare at the Garrick, in America in *The Notorious Mrs Ebbels*, and at the Duke of York's in *The Marriage of Kitty*. Tall, graceful, with a clear, incisive utterance, she was a true comedienne. Began a film career in 1930, appearing in *Eliza Comes to Stay*, *The Return of a Stranger*, and other films. Her son is well known on the stage as George Curzon.

**Jeffries, George** (d. c. 1685), Eng. musical composer, a member of the Chapel Royal, and organist to Charles I at Oxford, 1643, during the Civil war. He wrote anthems, services, over 120 motets,

and other church music, also music for masques and plays, secular songs, etc., and 'fancies' for strings and for the virginals.

**Jeffries, Matthew**, fl. 16th and 17th cents., Eng. composer of church music and vicar-choral at Wells Cathedral.

**Jegni Pangola**, see TOMI.

**Jehangir, or Salim Nureddin Mohammed**, see JAHANGIR.

**Jehoash**, see JOASH.

**Jehoiachin, or Jeconiah, King of Judah**, succeeded his father, Jehoiakim, in 598 BC. He reigned 3 months, being dethroned by Nebuchadnezzar and carried captive to Babylon. But 37 years later Evil-Merodach released him, and maintained him for the rest of his life (2 Kings xxiv. 6-16; xxv. 27).

**Jehoiada**, high priest under Ahaziah, Athaliah, and Joash (between 841 and 797 BC). When Athaliah, mother of Ahaziah, sought to destroy all the seed royal, J. hid Joash, the young son of Ahaziah, in the temple, and subsequently anointed him king while the guard slew Athaliah, the usurping queen, on his instructions. J. then destroyed the house of Baal, set up a public fund for repairing the temple, and restored it (2 Kings xi, xii; 2 Chron. xxiii. xxiv).

**Jehoiakim, or Eliakim, King of Judah** (608-598 BC), was put on the throne by Pharaoh-nechoh. But Nebuchadnezzar, King of Babylon, sacked Jerusalem, and J. became his vassal for 3 years (c. 605-602 BC) when he revolted. Jerusalem was sacked and the king slain (2 Kings xxiii. 34 ff.; xxiv. 1-5; 2 Chron. xxxvi. 4-8).

**Jehol**, formerly a prov. of China, now part of the Inner Mongolia Autonomous Region. J. was formerly inhabited by the Mongolian leagues of Josoto in the S. and Jooda in the N. See MONGOLIA.

**Jehoshaphat** (c. 873-849 BC), King of Judah, succeeded his father Asa, and began as an able and wise ruler, rooting out idolatry and building strongholds throughout the land. But his prosperity ended when he married Athaliah, daughter of Ahab, King of Israel. Ahab, seduced by false prophets, and against the warning of Micaiah, attacked Ramoth Gilead and persuaded J. to join him. Ahab was mortally wounded, and J. just escaped with his life. J. campaigned successfully against Moab and Ammon, but was killed (after Joram) by the rebel Jehu (1 Kings xv. 24; 2 Kings iii. 9; 2 Chron. xvii-xx).

**Jehoshaphat, Valley of**, mentioned only in Joel iii. 2 as a place where God will judge the enemies of His people, and sometimes identified with the valley of Berachah where Jehoshaphat conquered Ammon and Moab (2 Chron. xx. 26), but more probably with part of the Kidron valley between the Mt of Olives and the Mt of the Temple. Among Muslims and Jews, as well as Christians, it has been thought to be the site of the Last Judgment.

**Jehovah**. It is now felt that there is no authority for such a pronunciation of the name of God, which is founded on a misapprehension. The original word, known

as the Tetragrammaton, consists of the letters JHVH, or better, YHWH. This name came to be considered too ineffable to pronounce, and hence the vowels of the word *Adonai* (lord) were inserted, as a direction to the reader to replace it by this word. Thus we have the form YeHo-WaH, of JeHoVaH—short *e* taking the place of short *a*. If the Tetragrammaton is preceded by the word *Adonai*, the vowels of *Elohim* (God) are inserted, giving the form YeHoWiH. There has been much controversy both as to the original form of the word and also as to its origin and meaning. The early theory is now almost abandoned, there being general agreement in the acceptance of Ewald's suggestion that the true form is Yahweh. The forms Yahu and Yah also occur, both separately and as a component part in proper names. The question as to the origin of the title is more difficult. Exodus iii. 13 and vi. 3 imply that it was first revealed to Moses, but it had already been used earlier (e.g. Gen. iv. 26). The use of the name, indeed, formed the chief means by which the composite authorship of Genesis was discovered (see HEXATEUCH). The meaning is given in Exodus iii. 14, by God himself, as 'I am that I am,' and later simply 'I am,' and according to this interpretation, which is generally accepted, the word is the third person singular imperfect of the archaic stem HWH (to be). Many scholars, however, have regarded the idea as too abstract for so early a period, and have sought for a more concrete explanation.

**Jehovah's Witnesses**, unorthodox religious society of strong Adventist views. It was founded by Charles Taze ('Pastor') Russell in 1884 (incorporated in the state of Pennsylvania) as the Watch Tower Bible and Tract Society, and has been known as J. W. since 1939. The central organisation of the society is the Watch Tower Bible and Tract Society, and the International Bible Students' Association is their organisation for foreign work. See studies by J. W. Royston Pike, 1945, H. W. Stroup, 1954, and H. Thurston, 1955.

**Jehu**, son of Jehoshaphat, son of Nimshi, was general under Jehoram. During the latter's illness at Jezreel he seized the throne, and secured it by wholesale slaughter of the house of Ahab (2 Kings ix. ff.), as foretold by Elijah. Elisha supported him. J. is mentioned in a tablet of Shalmaneser III (842 BC) as paying tribute to Assyria. He was noted for his reckless driving (2 Kings ix. 20).

**Jejunum**, meaning empty, one of the 3 arbitrary divs. of the small intestine (q.v.). It is about 1½ in. wide, and about 8 to 9 ft in length, and is the connecting portion lying between the duodenum and the ileum. In general, its structure resembles that of the duodenum.

**Jelalabad**, see JALALABAD.

**Jelenia Gora** (Gor. Hirschberg), tn of Poland, in Wroclaw prov., on the Bobrawa at the foot of the Riesenbirge (q.v.), 60 m. WSW. of Wroclaw (q.v.). In the 14th cent. it belonged to Bohemia, and it

passed to Prussia in 1741. It is a textile centre, and has manufs. of chemicals and optical lenses. Pop. 42,000.

**Jelgava** (formerly Ger. Mitau; Russian Mitava), tn in Latvia, 25 m. SW. of Riga. There are textile and sugar industries. Pop. (1935) 34,000. Founded 1226 by Livonian knights; from 1561 cap. of Kurland (q.v.); 1795-1920 Russian.

**Jellachich**, Joseph, Baron von (1801-59), Austrian general and administrator, b. Peterwardein. He gained the confidence of the Croats, and was appointed Ban of Croatia (1848). He took the chief part in suppressing the Hungarian rising (1848-9), and commanded his troops against Montenegro (1853).

**Jellicoe**, John Rushworth Jellicoe, 1st Earl (1859-1935), admiral, b. Southampton; younger son of Capt. John H. J., commodore of the Royal Mail Steam Packet Co.; and great-grandson of Adm.



E.N.A.

LORD JELlicoe

Patton, Second Sea Lord at the time of the battle of Trafalgar. After some schooling at Rottingdean, J. passed the preliminary examination for the navy at the age of 12 and entered the training-ship *Britannia*. Became sub-lieutenant, 1878; lieutenant, 1880, with 3 first-class certificates. In 1881 he was appointed to H.M.S. *Agincourt*: he was present at the bombardment of Alexandria, July 1882; and he accompanied the naval brigade that marched with Wolseley to Cairo and fought at Tel-el-Kebir. His next ship was H.M.S. *Monarch*: from her, in May 1886, J. performed a life-saving feat for which he received the Board of Trade

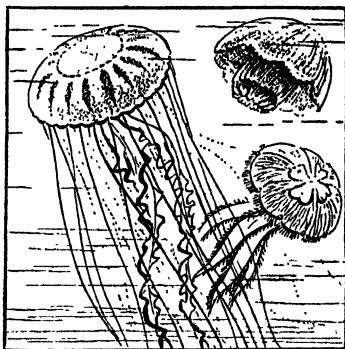
medal. He was for a while gunnery-lieutenant in H.M.S. *Colossus*; then junior staff-officer in H.M.S. *Excellent*; then first lieutenant in H.M.S. *Sans Pareil*. He was for 3 years assistant to Capt. (afterwards Lord) Fisher, director of naval ordnance. J. became commander in 1891, and was on board H.M.S. *Victoria* when she went down in the Mediterranean, 22 June 1893. He next served in H.M.S. *Ramillies*; then, becoming captain in Jan. 1897, he became flag-captain in H.M.S. *Centurion*, and was chief of staff to Vice-Adm. Sir E. Seymour during the attempted relief of the Peking legations, 1900: severely wounded at Peltang. He was naval assistant to the controller of the navy, 1902-3, and was then appointed to command of H.M.S. *Drake*. Director of Naval Ordnance, 1905-7, he greatly improved the shooting abilities of the navy. He was made rear-admiral, Feb., and K.C.V.O., Aug., 1907; was rear-admiral in Atlantic Fleet, 1907-8; lord commissioner of the Admiralty, Third Sea Lord, and controller of the navy, 1908-10; vice-admiral, 1910; in command of the Atlantic Fleet, 1910-1911. He commanded the 2nd Div. Home Fleet, 1911-12; and was Second Sea Lord, 1912-14. In 1913, for a while, he left his shore duties to command the 'Red' fleet in manoeuvres. On the outbreak of the First World War, J. was given command of the Grand Fleet. He became full admiral, Mar. 1915; and thenceforward till near the end of 1916 the fleet's hist. is his—especially the battle of Jutland, 31 May 1916, wherein his flag flew in H.M.S. *Iron Duke*. At the end of Nov. 1916 J. was made First Sea Lord, and relinquished command of the fleet to Sir David Beatty. He became chief of the naval staff, 1917. J. suddenly ceased to be First Sea Lord at the end of that year, being succeeded by Sir Rosslyn Wemyss. No official explanation was given of the abrupt dismissal. He was elevated to the peerage as Viscount J. of Scapa and, later, received the thanks of Parliament together with a grant of £50,000. After the armistice he toured the dominions in H.M.S. *New Zealand*, to prepare for re-organisation of empire navies. Governor of New Zealand, 1920-3. He retired from the service in 1924, and in 1925 was created Earl J. and Viscount Brocas of Southampton. He pub. *The Grand Fleet, 1914-16, its Creation, Development, and Work*, 1919, *The Crisis of the Naval War, 1920* (which narrates the chief features of his work in the critical year of 1917), *The Submarine Peril, 1934* (on the peril of 1917 and its lessons for the future). See life by R. H. S. Bacon, 1936.

**Jellinge**, see VIKING ART.

**Jelly**, solid state of matter produced by the addition to a liquid of some colloid substance, e.g. gelatine. A distinguishing feature of J. is its elasticity. J.s are much used as an article of food, and are eaten as sweets or savouries. The best J. is made from calves' feet. Ox-foot J. is also an excellent dish for invalids. Gelatine is much used in the manu. of sweetmeats, e.g. in gums and pastilles. Of vegetable

J.s agar-agar is well known, and is useful as a medium in bacteriology. Of the inorganic J.s that produced from a solution of silicic acid is best known. See JAM and PRESERVING.

**Jelly-fish**, bell-shaped or disk-shaped marine hydrozoa, embracing Scyphomedusae, Trachylina, Ctenophora, and



JELLY-FISH

Siphonophora, in all of which the body is shaped like a bell or a parachute. The body is bordered by a fringe of writhing tentacles. The J. normally swims with its subumbrellar surface downwards. The distinguishing feature of the J. is the mesogloea, a diaphanous and gelatinous secretion layer, situated between the ectoderm and the endoderm, and developed in great quantity. On the subumbrellar surface is the mouth, generally bordered by lips which bear stinging threads. The muscular system is arranged in a circular formation on the under surface of the umbrella. The muscles contract and the water is thereby pumped from the sub-umbrella, and the animal is jerked upward. This is the only means of locomotion. The J. seize their prey by their tentacles; the victim becomes paralysed and is drawn into the mouth. The Ctenophora are a species of J. which have both radial and bilateral symmetry. They are bell-shaped, the mouth being situated at the broader end. They have 8 meridians of iridescent paddles. Locomotion is effected by strokes of the paddle.

**Jemapper**, industrial tn in the prov. of Hainaut, Belgium, 3 m. W. of Mons. Here the Fr. Revolutionary army under Dumouriez defeated the Austrians and became masters of Belgium (1792). There are rich coal mines, glass, porcelain, crystal, iron, and chemical works. Pop. 13,100.

**Jemeppe**, tn in Belgium, 5 m. SW. of the city of Liège, on the R. Meuse. It has coal-mines, freestone and marble quarries. Its chief industries are iron, glass, and cokes. Pop. 13,300.

**Jena**, Ger. city in the dist. of Gera, on the Saale, 23 m. W. by N. of Gera (q.v.). On 14 Oct. 1806 Napoleon I (q.v.) won 2 great victories over the Prussians on the N. outskirts of the city. In the Second World War the city was taken by the Amer. Third Army in April 1945. The univ. of J., founded in 1558, attained fame in the 18th cent. when Hegel, Schiller, Fichte, Schelling, and Schlegel (qq.v.) were connected with it. The city has also associations with Goethe (q.v.). There is a Gothic Rathaus, and a fine 15th-16th-cent. church. The well-known optical works of J. were founded by Carl Zeiss in 1846; there are also engineering, publishing, and chemical industries. Pop. 80,000.

**Jenghiz Khan**, see GENGHIS and MONGOLS.

**Jenkin, Henry Charles Fleeming** (1833-1885), engineer. In 1859 he with Lord Kelvin made experiments in the manuf. and use of cables. His researches on gutta-percha were of the utmost value. He was elected F.R.S., and was appointed prof. of engineering at Univ. College, London, in 1865, and at Edinburgh Univ. in 1868. He pub. a valuable text-book on *Magnetism and Electricity*, 1873, and invented 'telpherage,' an electric automatic system for transporting goods. See R. L. Stevenson's essays, *Talk and Talkers* (Jenkin is 'Cockshot').

**Jenkins, Robert** (fl. 1731), Eng. sea-captain. He appeared before the House of Commons with one of his ears in cotton, alleging that the Spaniards had boarded his vessel off Havana in 1731, accused him of smuggling, and cut off his ear. This provoked war between England and Spain (1739) and led to Walpole's downfall (1742).

**Jenkinson, Anthony** (d. 1611), Eng. merchant and sea-captain. He visited Asia Minor and N. Africa (1546), and in 1557 was appointed agent of the Muscovy Co. He travelled to Bokhara (1558-9), and was commissioned to trade with Persia. By his efforts his company obtained the monopoly of the White Sea trade. See *Early Voyages and Travels in Russia and Persia* (Hakluyt Society, 1886), and biographical introduction by E. D. Morgan.

**Jenkinson, Robert Banks**, see LIVERPOOL, 2ND EARL OF.

**Jenné**, tn, an important centre of commerce in Upper Senegal (Fr.), on the R. Niger, 250 m. SSW. of Timbuktu. Once the cap. of the Songhai empire.

**Jenner, Edward** (1749-1823), physician and originator of vaccination, b. Berkeley, Glos. He was educ. for the medical profession; in 1770 he became a pupil of John Hunter, with whom he remained 2 years. He returned to practice in Berkeley. J. never passed a medical examination, such examinations not being compulsory in his time. He bought the degree of Doctor of Medicine from a Scottish univ. and later applied to Oxford Univ. for an honorary degree of M.D. and received it. He took great interest in the natural hist. of his dist. and he founded a local medical

association. As a child J. had himself suffered the risk associated with the inoculation of smallpox matter, and from his apprenticeship days with Hunter he was curious about the popular belief in Glos. that persons who contracted cowpox were thenceforth immune from smallpox. J. reasoned that if it were possible to transmit the cowpox virus from one individual to another (by inoculating persons successively by the arm-to-arm method) the result would be an available source of cowpox lymph which would be independent of the existence or otherwise of the natural disease in cows at any given



EDWARD JENNER

After a print engraved and coloured by I. R. Smith.

time. If this could be done, he saw that another difficulty might arise: after transmission through many individuals the virus might lose its immunising power. In 1778 J. began collecting material to confirm his conviction concerning cowpox as a protective virus and set out to investigate the above 2 propositions. After a number of experiments he pub. his results in his celebrated *Inquiry into the Causes and Effects of the Variolae Vaccinae*, 1798. J. believed that efficiently performed vaccination carried out with lymph taken at the right stage of the pock would give complete and permanent protection against smallpox, a view he maintained all his life. This was unfortunate because it was not true, though those who did contract smallpox suffered only from mild attacks. After him no one else attempted to extend the province of artificial immunity until Pasteur in 1880 introduced the inoculation of fowls for fowl cholera. All modern methods of preventing certain infectious diseases by immunological

methods trace their ancestry back ultimately to the substitution by J. in 1798 of vaccination—which became an estab. fact by 1800. Attempting in 1798 to introduce a system of vaccination in London, he met with great opposition, but nevertheless secured a hearing from many influential persons, including the royal family. Vaccination spread through England and other countries with such good results that in 1802 Parliament voted J. a grant of £10,000 (and in 1807 another of £20,000), and on the Continent he was elected a member of most of the great scientific societies. *See* lives by J. Baron (2nd ed.), 1850, and F. D. G. Drewitt, 1933.

**Jenner, Sir William, Bart** (1815–98), physician, b. Chatham, educ. at Univ. College, London. In 1844 he became M.D., and in 1847 began a course of investigation by which he eventually proved the distinction between typhus and typhoid. He became prof. of medicine at Univ. College, physician to sev. great hospitals, and medical adviser to the royal family, attending the Prince of Wales in his attack of typhoid. Receiving a baronetcy in 1868, he was in 1881 elected president of the College of Physicians. Rather autocratic in manner, but kind and considerate, he was in such request as a consultant that he left a fortune of £375,000. His writings include important works on fever and diphtheria.

**Jennings, Sarah**, *see* MARLBOROUGH.

**Jenolan Caves**, beautiful stalactite caves situated on the W. side of the Blue Mts, 113 m. W. of Sydney, New S. Wales.

**Jensen, Johannes Vilhelm** (1873–1950), Dan. novelist, poet, and essayist, b. Farsø. He studied philosophy and medicine at Viborg. He travelled extensively, and many of his books and stories are based on his journeys. He excelled in his descriptions of nature and scenery, both of his own native land and abroad. His most important works are *Himmerlands Historier*, 1898–1910, *Kongens Fald* (hist. novel of 16th cent.), 1899–1902, *Madame d'Ora*, 1904, *Skovene*, 1904, *Eksotiske Noveller*, 1907–25, and a series of 6 novels together called *Den lange Rejse*, and descriptive of the progress of the Nordic race throughout the ages. Other puba.: *Det Blivende*, 1934; *Dr. Renaults Fæstelse*, 1935; *Gudrun*, 1936; *Dardue* (play), 1937; and numerous short stories. Awarded Nobel prize, 1944. *See* O. Geilsted, *J. V. Jensen*, 1938; A. Henriques, *J. V. Jensen*, 1938; L. Nedergaard, *J. V. Jensen*, 1943.

**Jenson, Nicolas**, or Nicol (c. 1420–80), b. Sommevoire, near Bar-sur-Aube, Master of the Mint at Tours or perhaps Paris during the reign of Charles VII, thought by some to be a Walloon by descent. The king, hearing of Gutenberg's printing experiments, sent J. to Mainz in 1458 to obtain Gutenberg's secret. Leaving Mainz J. went to Italy, eventually settling in Venice. It is believed, however, that in the years 1462–70 he was associated with Sweeneyheim and Pannartz, 2 Ger. printers who had estab. themselves in the Benedictine monastery at Subiaco near Rome.

At all events, he began printing at Venice about the year 1470, and there designed a roman type of much beauty and merit that has been classic to the present time. He is mentioned in the *Cologne Chronicle* of 1499 as a printer to whom some had erroneously given credit of being the first inventor of the art. Extant portraits of him appear to be imaginary. *See* M. W. Haynes, *The Student's History of Printing*, 1930.

**Jephthah**, an illegitimate child of Gilead (Judges xi. 1 ff.), was driven out by his brethren and became leader of a band of freebooters, until recalled by the elders of Gilead to lead them against the Ammonites. He refused to come unless he was afterwards made their judge, and this was promised. He collected a large army and vowed that if successful he would offer as a burnt-offering to God the first thing that came forth from his doors on his return. This rash and ignorant vow led him to sacrifice his daughter, allowing her first 2 months to bewail her virginity. J. later turned on the Ephraimites who affronted him, trapping them as they fled at a ford of the Jordan, and detecting them by their inability to pronounce 'Shibboleth' properly (q.v.). *See* Fernandez, 'Jephthé' (*Verbum Domini* 1.), 1921; A. Van Hoonacker, *Le Voeu de Jephthé*, 1903; C. F. Burney, *Judges*, 1922.

**Jeppesen, Knud** (1892– ), Dan. musicologist and composer, a pupil of Carl Nielsen. He occupies an eminent position in Dan. musical life as composer, educator, and musicologist. After taking his musical degree, he continued his studies in Vienna with Guido Adler and Robert Laeh, obtaining his doctorate of philosophy with a detailed study of Palestrina's harmonic system, pub. in Danish, German, and English. As administrator and lecturer J. has held high posts at Copenhagen Conservatoire and Copenhagen and Aarhus Univs. He has written many works on music and ed. *Acta musicologica*, a quarterly concerned with musical science. He is not prolific as a composer. His 'Te Deum Danicum' is probably his finest work.

**Jepson, Edgar Alfred** (1863–1938), novelist, b. Kenilworth, Warwickshire. Educ. at Leamington College and Oxford, he worked as a schoolmaster first at Newport, Monmouthshire, and then at Harrison College, Barbados. Returning to London in 1894 he became editor of *Vanity Fair*, and wrote a great number of romances of adventure, including *Sibyl Falcon*, 1895, *The Keepers of the People*, 1898, *The Girl's Head*, 1910, *The Gillingham Rubies*, 1915, *The Loudwater Mystery*, 1919, *The Whiskered Footman*, 1922, *The Tragedies of Mr Pip*, 1926, and *The Moon Gods*, 1930. He also pub. some delightful stories about children, including *The Admirable Tinker*, 1904, *The Lady Noggs*, *Peerness*, 1906, and *Pollyooly*, 1911. *Memoires of a Victorian*, 1933, and *Memoires of an Edwardian*, 1937, are autobiographical.

**Jerabius**, *see* CARCHEMISH.

**Jerbah**, *see* GERASA.

**Jerba**, or **Girba** (anot **Meninx**), is. of

Tunisia in the Gulf of Gabes, off Africa, has an area of 425 sq. m. It is separated from the mainland by a fordable channel formerly crossed by a Rom. viaduct. There are many Rom. remains, including a triumphal arch and 2 castles. It is very fertile; olives, dates, and oranges grow there. The inhab. are occupied in sponge fishing. The chief tn is Haumt-es-Suk. Pop. of tn about 3000; of ls. 35,000.



JERBOA

Jerboa, name popularly given to members of the Dipodidae, a family of rodents remarkable for their powers of leaping. They are terrestrial animals, inhabiting the sandy or grassy plains in Asia, E. Europe, and N. Africa. *Dipus*, the typical genus, is from 6 to 8 in. in length, with a long tail and naked ears; the fore-limbs are very short and have 5 fingers, while the curiously elongated hind-limbs have only 3 toes. It is by means of these enormous legs that they are able to leap when in danger, but when undisturbed they walk on them in an ordinary way. The Js. are also burrowing animals, using their strong incisors for that purpose; their habits are nocturnal, and they feed on roots, seeds, insects, birds' eggs, etc., and occasionally do great damage to grain-crops. They are sometimes eaten by the Arabs. *D. hirtipes* is a well-known species; *Alactaga* is common on the Siberian steppes, *A. jaculus* being known as the jumping rabbit. *Platycormys* is distinguished by a flattened, lancet-shaped tail; *Zapus* is the so-called jumping-mouse of the U.S.A., and the genus *Sminthus*, whose legs are short and nearly equal, may be regarded as approaching most nearly to ancestral form.

Jeremiah, the great prophet, son of Hilkiah, whom some have identified with the Hilkiah mentioned in 2 Kings xxii, belonged to a priestly family of Anathoth, which he later quitted for Jerusalem. His call (ch. i) took place in the thirtieth year of Josiah (c. 627 bc). Five years later occurred the famous discovery of the Book of the Law, which led to

Josiah's great reform. In this J. does not figure at all, though he was no doubt in full sympathy with it. Some, however, have interpreted Jer. viii. 8 as showing that he was not. He was perhaps connected with a high-place at Anathoth, and might well have been disturbed at the displacement of his family by the reformer (cf. Buchanan Gray, *Sacrifice and Priesthood*). In any case it was not long before the prophet began to feel that no great or deep reformation could be carried out by the secular arm, and he took up the individualistic attitude which marks him off from the other prophets. His prophecies spread over the reigns of Jehoahaz, Jehoiakim, Jeconiah, Zedekiah, and part of the period of exile. The book of J. is interspersed with accounts of historical incidents, and the life of J. himself, added by a later hand, is tender and sad throughout. The prophet insists that the spiritual well-being of the chosen people is not bound up with their prosperity as a nation, and that only through defeat and oppression can the remnant be saved. He insists on the necessity of a spiritual religion and that the possession of the temple will not secure them from defeat. The Lachish Ostraca found in 1935 at Tell ed-Duweir belong to Zedekiah's last years and refer to a prophet who may be J. For the defeatism and, as was thought, lack of patriotism shown in his prophecies, J. was extremely unpopular and had to submit to much persecution. His book, which he had prepared with the aid of his friend Baruch, was torn and burnt, and he suffered frequent imprisonment in the most cruel conditions. After the capture of the city he was allowed to stay where he wished, and attached himself to Gedaliah, a Jewish prince who became the Babylonian governor. On the assassination of Gedaliah, he was forced to retire to Egypt, where tradition says that he met his death by stoning at the city of Tahpanes. See L. Elliott-Binns, 1919; G. A. Smith, 1929; H. H. Rowley, 1948; D. Winton Thomas, *The Prophet in the Lachish Ostraca*, 1946.

Jérémie, seaport on NW. of Tiburón peninsula, Haiti, 119 m. W. of Port-au-Prince. It has an important trade in cocoa, coffee, and log-wood. The father of the elder Dumas (q.v.) was b. here. Its airport was most useful as a centre for bringing aid when the city was razed to the ground by the hurricane of Oct. 1954. Pop. 11,000.

Jerez de la Frontera (formerly Xeres, anct Ceret), Sp. tn in the prov. of Cádiz, lying in a vine-covered plain 12 m. NE. of Cádiz city. It is chiefly famous for the wine, sherry (q.v.), to which it has given its name. The numerous white wine-lobes (*bodegas*) are a feature of the tn. There are Moorish remains, fine churches, and many interesting mansions. Pop. 102,000.

Jerez de los Caballeros, Sp. tn in the prov. of Badajoz, with anct walls and a Templars' castle. It is the centre of an agric. dist., and herds of swine and mules are kept. Pop. 16,000.

Jerfalcon, Gerfalcon, Gyrfalcon, or *Falco rusticolus*, name of a species of falcon (q.v.) belonging to the Falconidae: it is found in W. Russia, Scandinavia, Iceland, Greenland, and Arctic America, and its colour varies from grey to white.

Jerichau, Jens Adolf (1816-83), Dan. sculptor, was a pupil of Thorwaldsen. He was commissioned to carve a frieze for the royal palace of Christiansborg, near Copenhagen, and this piece of work, which was finely executed, estab. him in high repute. Among his best classical studies are 'Heracles and Hebe,' 'Penelope,' and the 'Wedding of Alexander.' His

parts of the old city of J., and their evidence, including the traces of destruction and of fire, seemed to corroborate the biblical story. Further investigation in 1920 showed that the stone rampart was of the Middle Bronze Age (c. 1800 bc), but the date of the inner wall was left to be estab. by Sir Charles Marston's expedition under Dr John Garstang, prof. of archaeology at Liverpool Univ., which proved that the inner wall belonged mainly to the Late Bronze Age, the period of Joshua. Cuttings made by Dr Garstang, in June 1930, in the mound of old J.—the ruins of the walls are situated near



IN THE WINE CELLARS OF JEREZ DE LA FRONTERA

religious subjects include 'The Resurrection,' 'Adam and Eve,' and a figure of Christ. J. also made a portrait statue of Oersted.

Jericho, once an important city of Palestine, in the Jordan Valley, 15 m. NE. of Jerusalem. The site of the old city was in the midst of a fertile dist. where palms, rose trees, raisins, and balsams grew in profusion. According to the Bible narrative and other accepted authorities, the tn was captured by the Israelites on their entry into Canaan, re-fortified by Hiel the Bethelite, destroyed under Vespasian, and rebuilt under Hadrian. Antony is said to have given its groves to Cleopatra, and Herod the Great dwelt there. In anct times J. held a fairly important position strategically, dominating the chief trade routes of antiquity from Jerusalem towards the E. But it was too isolated to be able to rely in an emergency on the help of friendly cities, and consequently it was, from a very remote age, surrounded by defensive walls: and both hist. and archaeology agree that the city was frequently destroyed. Early in this cent., Ger. excavators discovered the defensive ram-

the modern vil. El Riha (Arabic form of J.), on a low mound at the foot of the W. plateau—revealed that the fortifications of J. represent an almost continuous occupation, twice broken by invasion between 2000 and 1600 bc; at which latter date the walls were reconstructed upon the brink of the mound, and these in their turn perished in some conflagration. The W. side of the defences showed continuous signs of destruction and conflagration, the outer rampart (which is 6 ft thick) suffering most, its remains falling down the slope. The most arresting fact disclosed by Dr Garstang is the traces of intense fire 'including reddened masses of brick, cracked stones, charred timbers, and ashes. Houses alongside the wall are found burned to the ground, their roofs fallen upon the domestic pottery within.' All these facts give strong support to the Bible narrative, making it probable that the fallen walls of the Late Bronze Age are actually those of the city which is said to have been taken and burnt by the Israelites under Joshua. More recent excavations, directed by Miss K. Kenyon of the Brit. School of Archaeology in Jerusalem, and not yet completed,

promise to contribute greatly to knowledge of the origins of civilisation. Evidence collected seems to prove the existence of civilisation in J. 3000 years before the beginnings of Egypt and Sumer. Neolithic fortifications indicate the existence of enemies with similar standards. See Sir Charles Marston, *New Knowledge about the Old Testament*, 1933, and *Palestine Exploration Quarterly*, 1956.

**Jericho**, *Rose of*, or *Anastatica hierochuntina*, ann. species of Cruciferae, which also alone forms a genus. It is native to Syria and the Middle E. See RESURRECTION PLANTS.

**Jeritza, Maria** (1887- ), Czech soprano, b. Brno. She studied piano, violin, cello, and harp, cultivated her voice when she was 14 under Auspitz of Brno, and made her debut as Elsa in *Lohengrin* at Olomouc in 1910. She was a member of the Imperial Opera in Vienna in 1913 and of the Metropolitan Opera, New York, in 1925, and in 1935 she received the Order for Meritorious Service. An Eng. trans. of her reminiscences, entitled *Sunlight and Song*, appeared in 1924.

**Jeroboam I**, son of Nebat, was the first King of Israel (931-910 BC) after its separation from Judah on the death of Solomon. As Solomon's tax-gatherer in his own dist. of Ephraim he was suspected of treason and made a hasty flight into Egypt. On Solomon's death he returned and led the deputation to Rehoboam, asking for a lightening of taxation. On the young king's refusal, he led the revolt of the 10 tribes, and became their king (see ISRAEL). His erection of golden calves for worship at Bethel and Dan led to his name becoming a byword in later days as having 'made Israel to sin.'

**Jeroboam II**, reigned c. 787-747 BC, son of Joash, fourth king of the dynasty of Jehu, and perhaps the greatest of N. Israelite kings. His reign was long and prosperous, an Indian summer during the temporary decline of Syria and the preoccupation of Assyria elsewhere. This led to moral and religious decay, as worldly goods so often do, and Amos and Hosea prophesied warnings of judgment upon the faithless nation.

**Jerome**, St (Sophronius Eusebius Hieronymus), b. of Christian parents in Stridon on the borders of Dalmatia and Pannonia, between 331 and 340. At about the age of 20 he was sent to Rome, where he studied the classical authors under Aelius Donatus and was baptised by Pope Liberius. He continued his studies at Trier and later at Aquileia, where he first studied theology. He then began a tour of the E., arriving at Antioch in the year 373, where, after a severe illness, he retired for 4 years to the desert, spending his time in penance and study, especially of Hebrew. In 379 he was ordained priest at Antioch, and went to Constantinople. In 382 he visited Rome on eccles. business, began his work on the Bible, and he met Marcella, Paula, and other noble ladies, who returned with him in 386 to Bethlehem. His writings against the Pelagians placed his life in jeopardy, and in 416 he

had to flee from his retreat, to die 4 years later. J.'s best-known work is his Lat. version of the Bible, the Vulgate, ever since in use throughout the Rom. Church. His classic, however, is the *De Viris Illustribus* (continued by Isidore of Seville, Ildefonso, Sigebert of Gembloux, etc.), the most important work of its kind in the early Middle Ages, from which, with the *History of the Church* and the *Chronicon* of Eusebius, local chroniclers drew most of their facts and ideas. See his complete works ed. by the Benedictines (5 vols. folio), Paris, 1693-1706, D. Vallarsi (11 vols.), Verona, 1734-42, and Herding, 1879; also lives by F. Collombet, 1844; E. L. Cutts, 1878; F. W. Farrar in *Lives of the Fathers*, 1889; F. Bulle, 1919-22; F. Cavallera, 1922; A. Largent, 1922.

**Jerome, Jerome Klapka** (1859-1927), novelist and playwright, b. Walsall, Staffs., son of a lay preacher. The family moved to Poplar, and young J. was educ. at Marylebone Grammar School, afterwards becoming a railway clerk at Euston station. He was at different times reporter and schoolmaster, and also tried the stage, of which he wrote in *On the Stage—and Off*, 1885. In 1889 he became celebrated through *Idle Thoughts of an Idle Fellow* and his most famous book, *Three Men in a Boat*, which sold a million (pirated) copies in America. It was followed by *Three Men on the Bummel*, 1900, an account of a tour in Germany, and a novel, *Paul Kelter*, 1902. In 1892 J. was joint editor of *The Idler*, and in 1893 started his own twopenny weekly *To-day*, with Stevenson's *Ebb Tide* as the serial, but a costly lawsuit brought it to an end. Of his plays the most famous is *The Passing of the Third Floor Back*, 1908, a kind of modern morality, with characters named Cheat, Slut, Rogue, and Cad. In the First World War he was an ambulance driver. His autobiography, *My Life and Times*, appeared in 1926. See life by A. Moss, 1929.

**Jerome Bonaparte**, see BONAPARTE, *Jerome Bonaparte*.

**Jerome of Prague** (d. 1416), early Bohemian Church reformer and friend of Huss (q.v.), with whom he co-operated in obtaining a decree for the expulsion of the Nominalists, who had to transfer to Leipzig. Little is known of his early years; he is said to have belonged to a noble Bohemian family and to have been a little younger than Huss. He began his studies at Prague, but proceeded to Oxford in 1398. He was impressed by Wycliffe's writings, and always lived a roving life. After leaving Oxford he went to the univ. of Paris, then to Cologne and Heidelberg, and finally returned to Prague in 1407. Here he attracted attention by his advanced and outspoken views, and offence was given because he exhibited Wycliffe's picture in his rooms. When the reorganisation of the Prague Univ. was discussed, Huss and Jerome, as leaders of the Bohemians, incurred the anger of the king, who threatened them with death by fire if they opposed his will. J. was arrested, but in prison he



renounced the doctrines of Huss and Wycliffe. Later, however, he again maintained the theories he had formerly advocated and was burned as a heretic. In his writings he constantly refers to the *formalists* of Duns Scotus, but it is evident that he is, at the same time, inspired by Wycliffe's logic, which he had studied closely in Paris. This explains his love of subtlety and his tendency to oppose faith to philosophic doctrine. Details of his life and teaching will be found in most hist. of Bohemia.

**Jerram, Sir Thomas Henry Martyn** (1858-1933), Brit. admiral. He led the second battle squadron at the battle of Jutland. K.C.M.G., 1916. Admiral, 1917. G.C.M.G., 1919.

**Jerrold, Douglas** (1893- ), author and editor, b. Scarborough, great-grandson of Douglas Wm J. (q.v.). Educ. at Westminster and Oxford, he served with the Royal Naval Div. during the First World War and then entered the Civil Service. From 1930 to 1936 he was editor of the *English Review* and from 1945 of the *New English Review*. His books include 2 novels, *The Truth About Queer*, 1927, and *Storm Over Europe*, 1930, and a number of historical works, including *The War on Land, 1914-18*, 1928, *An Introduction to the History of England, 1949*, and *England: Past, Present, and Future*, 1950. *The Lie About the West*, 1954, was a reply to Prof. Toynbee's theory of the existing world situation.

**Jerrold, Douglas William** (1803-57), author and dramatist, b. London. After contributing to many papers and doing much literary hack-work, he scored a great success with his nautical play, *Black-eyed Susan; or, All in the Downs*, which was produced in 1829 at the Surrey Theatre, with T. P. Cooke as the hero. J. wrote other plays, the most popular of which was *Time Works Wonders*, 1845, but only *Black-eyed Susan* still holds the stage. When *Punch* was founded he joined the staff, and in its columns appeared the famous *Mrs Caudle's Curtain Lectures*, 1846. His other works include *The Story of a Feather*, 1844, *The Chronicles of Cloverhook*, 1846, and *A Man Made of Money*, 1849. From 1852 until his death he ed. *Lloyd's Weekly Newspaper*. A voluminous writer, he had a keen sense of humour and a caustic wit which made him many enemies, but in his writings he was blatant rather than refined. His books now seem very old-fashioned, and even his masterpiece is little read, save by students of the humour of the forties. There is a biography by his son Wm Blanchard J. (q.v.).

**Jerrold, Walter Copeland** (1865-1929), journalist and author, b. Liverpool, grandson of Douglas Wm J. (q.v.). His works include biographies of M. Faraday, 1891, Gladstone, 1893, Meredith, 1902, Lamb, 1905, T. Hood, 1907, and Douglas Jerrold, 1918; also *Triumphs of the Printing Press*, 1896, *Highways and Byways in Kent*, 1907, *D. Jerrold and Punch*, 1910, *Henry VIII and his Wives*, 1925, and *Five Queer Women*, 1929. He ed. Thackeray, De

Quincey, Dickens, and others in the Temple Classics, as well as *Nursery Rhymes*, 1902-12, *D. Jerrold's Essays*, 1903, and *The Book of Living Poets*, 1907. He wrote for children as 'W. Copeland.'

**Jerrold, William Blanchard** (1826-84), author, b. London, eldest son of Douglas Wm J. (q.v.), at whose death, in 1857, he succeeded to the editorship of *Lloyd's Weekly Newspaper*. He wrote the farce *Cool as a Cucumber*, in which Charles Matthews the younger made his reputation. Among his best books are some gastronomic manuals, his biography of his father, and *The Best of all Good Company*, accounts of imaginary days spent with the leading Victorian novelists.

**Jersey**, largest and most southerly of the Channel Is. (q.v.), has an area of about 45 sq. m., and a pop. of about 57,000 (1951), divided almost equally between the main tn and port of St Helier on the S. coast and the remainder of the is. The coastline is rugged and steep in the N.; in the E., W., and S. there are a number of wide sandy bays. Reefs, rocks, tides, and currents render navigation difficult. The climate is mild, with warm summers. The is. slopes gently southwards and the land is very fertile, thanks also to wise husbandry, aided by the regular use of animal manure, seaweed (vraio), and artificial fertilisers. The local folk are of Norman stock but there has been considerable admixture of Fr. and Breton immigrants, often the residue of imported seasonal labour, and of Eng. *rentiers* who for over 100 years have found the is. a congenial place for retirement. The J. language, based on the Norman language, is still current in the country dists. but during the past 40 years has been rapidly replaced by English. French remains the official language of the is. but the legislature, the courts, and all business affairs are now conducted almost exclusively in English.

The is.'s political institutions are of great antiquity, and are not set out in a formal constitution. The is. is divided into 12 pars., originally based on Church organisation, each with its elected officials and budget. The States (Les Etats) serves both as the central legislature and, through committees, as a central administrative body. The members of the par. councils and of the States are unpaid and much of the administration of the is., including police work other than part of that in St Helier, is carried out by elected unpaid officials. Various social services are now being introduced. The rate of income-tax, levied on similar lines to that in the U.K., is (1958) 4s. in the £.

The Royal Court is one of the oldest in the kingdom. It is composed of the bailiff and crown officers and of 12 elected *jurés-justiciers* or *jurats* who hold office for life, and who hitherto have also held life office in the States thus combining judicial, legislative, and administrative functions. Reforms adopted in 1948 have excluded the *jurats* from the States and have also excluded from the States ex-officio membership of the 12 Anglican

par. priests, thus making the States—apart from the Bailiff who presides—a wholly elective body comprising 12 senators elected for 9 years, 12 constables of the 12 par., who serve by virtue of their 3-year office, and 28 deputies elected for a period of 3 years.

There is also a police court and a petty debts court, for minor offences, also trial by jury for criminal cases only. An ancient 'assize d'héritage' is held twice yearly at which local *seigneurs* renew their homage to the queen and advocates (barristers) of the Royal Court renew their oath of office. Local law and customs are based on Norman law, but substantial modifications in respect of inheritance, women's rights, and other matters have been introduced. Laws of modern origin, e.g. income-tax, are based on Eng. practice.

J., like the other Channel Is., was occupied by Ger. troops from the end of June 1940 till 9 May 1945. Very strong defences were built by the occupying troops. The absence of any fighting on the is. during the period, or in the course of, occupation and liberation, spared the is. any serious physical damage.

In the 19th cent. shipbuilding, seafaring, and overseas trading—and in earlier days, privateering—were the is.'s mainstay. These activities have disappeared and the is. is now dependent upon agriculture, mainly for export, and upon seasonal tourist traffic. Import trade is substantial and is done almost entirely with the U.K.

Early potatoes and tomatoes, both grown outdoors and often in succession in one season, are the main export crops. Pre-war ann. exports, entirely to the U.K., averaged about 60,000 tons of potatoes and 25,000 tons of tomatoes, and 53,000 tons of granite, of an aggregate value of about £2 millions. Tomato exports to the U.K. in 1947 reached a record of 44,590 tons valued at £2½ millions. Some 1000 head of cattle are exported each year, mainly to the U.K. and the U.S.A., also to Australia and New Zealand. The normal cattle pop. of the is. numbers about 10,000. The J. breed of cattle is remarkably free from disease and the high yield of milk and its high butter fat content is unsurpassed. Breeding standards are maintained by the breeders' organisations. The animals lose some of their peculiar characteristics after 4 or 5 generations have been bred overseas, and this ensures a recurring demand for cattle from the is.

J. has some peculiarities of fauna, and there are some notable megalithic tombs, the finest being La Hougue Bie. See T. D. Kendrick and Jacquetta Hawkes, *The Archaeology of the Channel Islands*: vol. II, *The Bailiwick of Jersey*, 1937; G. R. Balleine, *A History of the Island of Jersey*, 1950, and *The Bailiwick of Jersey*, 1951.

**Jersey Breed.** see CATTLE.

**Jersey City**, co. seat of Hudson co., New Jersey, U.S.A. At the N. the Hudson and Hackensack R.s make it almost an

is., whilst southward it is flanked by New York and Newark bays. It is separated from New York by 1 m. of riv., and connected with it by sev. lines of ferries, the Hudson R. tunnels, and also by a great vehicular tunnel which was opened in 1928. It is the E. terminus of many railways, and has spacious docks along its 12 m. of water frontage. The second largest city in the state, it manufactures ink, chemicals, cans, machine-shop and foundry products, petroleum products, steel and metal products, soap, pencils and other graphite goods, cosmetics, cigarettes, footwear, elevators, paint, coke, clocks, and clothing. It is the site of St Peter's College, John Marshall College, a state teachers' college, and a junior college. It has a fine public library and a modern medical centre. Early Dutch trading posts were estab. in this area; Eng. rule began in 1664. The coming of the railroads and the old Morris Canal in the 1830's stimulated growth. In Aug. 1916 German sabotage caused a devastating explosion of munitions on Black Tom Is. on the waterfront. Paulus Hook occupied the site till 1820, when the city of Jersey was incorporated. Pop. 299,000.

**Jerusalem**, city of Judaea, situated 31° 46' N. lat. and 35° 13' E. long. It stands on a plateau formed of 2 hills, and bounded both E. and W. by valleys, that on the E. being the brook Kidron referred to in the N.T. To the N. there are also 2 valleys. The generally exact idea of the geography and geology of J. is due to a succession of investigations which commenced in 1833. After that time the work continued under various investigators, of whom the most prominent were De Vogüé (1860-3), Capt. Wilson, R.E. (1866), Capt. Warren, R.E. (1867-70), and Lieut. Conder, R.E. (1872-5). Still more results have been obtained by the Palestine Exploration Fund, which commenced operations in 1894, and a great impetus was given to the work after the First World War, especially through the activities of the Brit. School of Archaeology in J. In the period 1910-1930 the chief excavations in the vicinity of J. were those of Parker in 1911, Weill in 1913 and 1923, Macalister and Duncan in 1923-5, and by Crowfoot in 1927-8, all of Ophel, the hill to the SE. of the city; and the topographical data from these excavations are of value as establishing the position of the City of David, and also as indicating, though not finally proving, that some of the rock-cut caves may formerly have been used for royal tombs. Excavations at the Citadel at the Jaffa Gate, so conspicuous a feature of the walled city, have proved that the massive tower commonly called the Tower of David is really the Tower of Phasaël, one of three erected by Herod c. 25 BC as defences for his citadel and palace, and that it was inserted in a pre-Herodian wall on the NW. corner of the ancient city, a large section of which has been uncovered running across the courtyard of the present Mameluks Citadel. Excavations in 1946 tended to confirm doubts which had

arisen as to previously accepted beliefs about the extent of the first J., estab. in the time of the Heb. monarchy about 1000 BC to 587 BC. The hill on which the Citadel stands is traditionally known as Mt Zion, but the excavations do not support the theory that a part of the 'Stronghold of Zion,' the City of David and his successors, was located on that hill. Researches at the Walling Wall go to show that the boundaries of this celebrated relic coincide with those of the platform of the temple of Solomon, of

(q.v.), with remains of the basilica of Constantine; the Walling or W. Wall; the Mt of Olives; the tomb of David (Caenaculum); the Crusaders' Church of St Anne; the Jewish tombs in the valley of Jehoshaphat; the Armenian Cathedral; the Ecce Homo arch; the Church of the Tomb of the Virgin; and the Garden of Gethsemane. 'The old city within the walls, that city "compact together" with its vaulted *sugs* [bazaars] and narrow streets, that have undergone no change for cents., with its steep alleys flanked in



Paul Popper

## JERUSALEM AND THE MOSQUE OF OMAR

which courses of stone are supposed to be in existence below the surface. Each of the 2 hills which form the site of the city is a natural fortress, for the 2 are divided by a deep valley (the Tyropeon), and it is probable that from the earliest times they were so used. The lack of water must, however, have proved a serious disadvantage. The 'Virgin's Spring' in the Kidron valley, and just outside the old city wall, is the only spring near the city, and there is but 1 important well within. The water in the Pool of Siloam is brought from the Virgin's Spring by a rock-cut aqueduct, running through the old Ophel wall. The temple (comprising the dist. now known as the Haram) was built on the E. hill. On the W. hill was built the upper city.

The chief monuments of interest to visitors are the Church of the Holy Sepulchre

many cases by masterpieces of Saracenic architecture, may well, however, be regarded as the greatest monument of all, unique in its compactness, in its appearance of hoary antiquity, and in that homogeneity which it is the aim of its present administrators [then the Brit. mandatory gov.] jealously to preserve' (H.M.S.O., *Jerusalem City Plan*, 1948). Of new buildings some of the most striking are the Anglican Cathedral and Close of St George, built by George Jeffrey; the Franciscan basilica in Gethsemane; the Ger. Catholic church outside the Zion Gate; the It. Hospital, designed like a Florentine palace; the Lutheran Church of the Murlitan; and the fine Heb. Univ. (modern) with superb sculptures by Eric Gill. The walled city of J. is entered by 7 gates: the Jaffa ('Gate of the Friend'); New, near Allenby Square; Damascus ('Gate of the

Column'), N. wall; Herod's ('Gate of Flowers'), N. wall; St Stephen's ('Gate of Our Lady Mary' or 'Gate of the Tribes'), E. wall; Dung ('Gate of the Moors'), S. wall; and Zion ('Gate of the Prophet David'), S. wall, on Mt Zion. The Golden Gate, built in the 5th cent. on the Haram enclosure, was walled up by the Turks soon after they occupied Jerusalem in the 16th cent.

J. has greatly altered in appearance since the First World War, and continued to develop throughout the Brit. mandatory regime. Some of the suburbs have the aspect of bustling towns in the W. states of America; while new streets are being made and new districts opened up. There are also motor-bus services. There are big banks and commercial houses, and new premises on a far more modern plan than those of even a few years before have been erected. The great majority of the pop. of J. dwells outside the walls of the city, though later than the middle of last cent. there was not a building outside the gates of the city walls. But to-day hotels, large stores, and commercial buildings generally have been opened up outside the city proper, and with this development have come the garden cities. This greater J. has now spread half way to Bethlehem to the S., to Mt Scopus to the N. (the site of the Brit. cemetery), and to the W. as far as Ain Karim, the bp. of John the Baptist. Extension eastward is impossible, because there the land falls steeply into the Kidron valley. The beauty of the buildings of J., considered apart from their sanctity, lies largely in the colour and texture of their stone, which, after cents., has mellowed to a golden grey. It blends in a remarkable manner the walls and gateways of the Old City, the towers of its many churches and monasteries, the modern commercial buildings along Princess Mary Avenue, and the villas of Rehavia and Qatamon. One of the aims of the Palestine Gov.'s town-planning commission under the mandatory regime was to maintain this unity of character throughout the fast developing city by insisting on the use of stone for all buildings. The ubiquity of stone was threatened by the use of concrete, providing an instance of a W. technique, introduced by Jewish immigration, which conflicted with the traditional way of life. The account which Britain can give of her stewardship in respect of town planning in J. is one of which any administration might be proud. The successive measures of the Brit. planners during the 30 years of mandatory rule were directed to one or other of 2 objectives: the preservation of the Old City and the encouragement of high standards, hygienic, social, and aesthetic, in the modern city, which during those 30 years had fast been growing up around it.

The buildings of Greater J. extend nearly as far as the Well of the Magi. Here the residences (and also those at Bethlehem itself) are especially handsome, many of them having been built by native craftsmen who had learned their trade in

the U.S.A. and returned to Palestine as wealthy men. It is estimated that some £3,000,000 was spent between 1925 and 1930 on the erection of private dwellings in Greater J., while over £250,000 was spent upon the handsome King David Hotel. On 22 July 1946 an entire corner of the hotel was destroyed by bombs of Jewish terrorists. Military H.Q. in Palestine and the prin. secretariat offices, with the exception of that of the High Commissioner, were located in the building and over 50 persons were killed, including sev. senior gov. officials. The most attractive of the garden cities are Janiniriel and Beth-Hakerem, while the new Arab colony of Talbiyah, SW. of the city, has replaced what a few years ago was a waste, bearing a few olive-trees. The largest and best known of the garden cities is the Talploth, lying S. of the city on the Bethlehem road, which has been developed by the Palestine Land Development Co., and contains besides hundreds of stone dwellings—all detached and conspicuous for their balconies, arched windows, large verandas, striking roofs, and fine gardens—a tn hall, baths, synagogue, theatre, and indeed all the amenities of an independent community. Some of the most important public or commercial buildings completed in recent years in J. or outside the Old City are the Heb. Univ., opened by Lord Balfour in 1925, the new library on Mt Scopus, containing the largest collection of Heb. books and papers in the world, the Pontifical Biblical Institute, the College of Jerra Santa, the Rothschild (Hadassah) Univ. Hospital on Mt Scopus (designed by Eric Mendelsohn), the General Post Office (designed by Austin Harrison, who designed Nuffield College), a good blend of W. functional ideas with E. motives, and the Anglo-Palestine Bank. J., being a Holy City for 3 Faiths, is the seat of a number of prelates and religious bodies. There are 3 Christian patriarchates, Orthodox, Latin, and Armenian, having the style of 'Beatitude,' and, in addition to the Anglican bishop in J., a Jacobite and a Coptic bishop.

For long it was thought that the name of J. was given to the city after its conquest by David, but this judgment has been reversed by the discovery of the Amarna tablets (c. 1400 BC) in 1890. Here the name occurs in the form *Urusalem*, some 500 years before the time of David. The derivation has been variously derived from Heb. forms meaning 'the city of peace,' 'possession of peace,' 'foundation of peace,' 'city of the god Salim,' etc. In the Book of Joshua it is spoken of as *Jebus*, with the explanatory note 'which is Jerusalem,' and an account is given of Joshua's assault on it. It fell back, however, into the hands of 'the stranger,' and it was not until the time of David that it was permanently captured and made the seat of the regal gov. (see *DAVID*). This occurred at the beginning of the 10th cent. BC. For its hist. down to its destruction in the time of Zedekiah see *ISRAEL*, where is also given an account of the attempts to rebuild it under Ezra and

Nehemiah, of the various foreign powers under whose dominion it successively came, and of the factions with which the city was torn, until the time of its utter destruction by Titus, the Rom. general. It was not long, however, before the city was rebuilt, though on a smaller scale, by the Emperor Hadrian, and the new name of Aelia Capitolina was given to it. During the first few cents. it passed through a period of tranquillity, but it again came into prominence as the habit of pilgrimage to sacred places grew up, and as spot after spot associated with events in the life of Christ was identified by revelations made miraculously to

comparatively peaceful and uneventful. It passed into Turkish hands in 1517, and remained under Turkish rule until the First World War of 1914-18, when it was taken by Gen. Allenby in Dec. 1917. The full story of the brilliant capture of J. will be found in the *Record of the Advance of the Egyptian Expeditionary Force*, compiled by Lt.-Col. H. Pirie-Gordon, 1919. On his official entry Allenby made it known by proclamation that 'every sacred building, monument, holy spot, shrine, traditional site, endowment, pious bequest, or customary place of prayer of whatsoever form of the 3 religions will be maintained and protected according



(Canadian Pacific)

THE WALLING WALL, JERUSALEM

individuals. Many great churches were erected, of which the first was Constantine's Church of the Anastasis (336) near the Holy Sepulchre. The Church of St Stephen and many other eccles. buildings were erected by the Empress Eudocia from about 450 onwards, and Justinian built the Church of St Mary, which later formed part of the Mohammedan mosque el-Aksa. In 614 the city was taken by Chosroës, the Persian, and most of the churches were destroyed. It was recaptured by Heraclius in 627, but lost again 9 years later, to remain in the hands of the Muslims until 1099. At the beginning of this period the mosque el-Aksa was erected on the site of the Jewish temple. In 1099 the city was taken by Godfrey of Bouillon and his knights, thus returning once more into Christian hands. But the Lat. kingdom of J. was not long-lived, nor was it by any means stable during its continuance. It fell in 1244, after having been for a short time in the hands of the ex-communicate Frederick II, to whom it had been ceded by treaty in 1229 after having been captured by the Muslims. From 1244 to 1917 J. remained in Muslim hands, and during this period its hist. was

to the existing customs and beliefs of those to whose faiths they are sacred.' From 1920 onwards there were sporadic outbursts against the Jews on the part of the Arabs, especially in 1929—the Walling Wall riots—and from 1936 to 1938, when underground Arab revolt against the Jewish immigration and the National Home threatened the whole country (see further under PALESTINE and WALLING WALL). The pop., which has greatly increased from immigration under the mandatory regime, was 62,700 in 1922, 127,000 in 1939, 155,000 at the end of 1944, and 164,440 (99,320 Jews) in Dec. 1946.

Towards the end of 1945 the Brit. Gov. announced the setting up of a joint Anglo-Amer. inquiry into the conditions of European and Palestinian Jewry. The institution of this inquiry displeased the Zionists and was followed by terrorist outrages organised by Irgun Zvi Leumi, the 'Stern Gang,' and Haganah, although disowned by the Jewish Agency. Many outrages were perpetrated in J. in 1946-7. With the ending of the Brit. mandatory regime in May 1948 war broke out in Palestine between the Arabs and Jews. It was hoped that a truce would protect

J. and the holy places, but in fact the war actually began in J. itself, when the Arab Legion from Transjordan shelled the Jewish quarters of the city and the Jews occupied various institutions from which they fired on the city and attacked J. generally. (For the war in J. see ISRAEL.)

According to the decision of the U.N. the city of J., with its surrounding towns and vills, and all the Holy Places, is to be part neither of the Arab nor the Jewish State, but is to be administered by an International Trusteeship system. This decision was ignored by both Israel and Jordan, with tacit Brit. support. J. is now divided into 2 cities: the Jordanians hold the N.E. and E. parts, including the walled city (except for Mt Zion) and most of the Holy Places (pop. estimated at 35,000); the rest is held by Israel, as well as an enclave on Mt Scopus containing the disused buildings of the univ. and the Hadassah hospital. Arrangements are made for pilgrims to cross the border at Easter and Christmas at the so-called 'Mandelbaum Gate.' Shooting frequently occurs across the narrow no-man's-land, and some loss of life has been occasioned thereby.

The Israeli part of J. has been much extended and has a pop. of about 160,000. On 23 Jan. 1950 the *Knesset* (Parliament) declared J. to be the cap. of Israel and the gov. offices were removed there from Tel-Aviv, the Foreign Office being the last to arrive (in July 1953). New univ. and official buildings have been erected between the suburbs of Rehavia and Beit Hakerem, and the remains of Herzl and other Zionist leaders have been reinterred at Bayit Vegan. The U.N. Truce Commission has its H.Q. in J.

See also ISRAEL; PALESTINE. See Sir C. Warren, *Underground Jerusalem*, 1876; G. Le Strange, *Syria and the Holy Land*, 1890; various pubs. of the Palestine Exploration Fund; Sir C. M. Watson, *Jerusalem*, 1912; George Jeffroy, *A Brief Description of the Holy Sepulchre, Jerusalem, and other Christian Churches in the Holy City*, 1919; H. Duckworth, *The Church of the Holy Sepulchre*, 1922; *Jerusalem Nouvelle* (Paris), ed. by Vincent and Abel, 1922-6; C. R. Ashbee, *Jerusalem*, 1924; E. Reynolds-Ball, *A Practical Guide to Jerusalem and its Environs*, 1925; E. L. Sukenik and L. Mayer, *Third Wall of Jerusalem*, 1930; H. C. Luke and E. Keith-Roach, *The Handbook of Palestine*, 1934; H. M. S. O., *Jerusalem City Plan: Preservation and Development during British Mandate, 1914-18, 1948*; R. M. Graves, *Experiment in Anarchy*, 1949.

*Jerusalem Artichoke*, or *Helianthus tuberosus*, well-known species of Compositae, closely allied to the sunflower, which is cultivated on account of its edible tubers. It is indigenous to America.

*Jerusalem Chamber*, part of the deanery of Westminster Abbey, was originally the abbot's parlour, and dates from the late 14th cent. It derives its name probably from the tapestries of the hist. of Jerusalem which formerly adorned it. Henry

IV died here in 1413. The chamber was restored in 1624; it was the meeting-place of the scholars who prepared the R.V. of the Bible, 1871-81. The Crown is lodged here on the night before the coronation.

*Jervaulx Abbey* (York, England), ruined Cistercian monastery, founded in 1156. Remains of the cruciform church, the cloistral courts, chapter house, and refectory, etc., belong to the Transitional Norman or Early Eng. period. The last abbot was hanged in 1537, because he was implicated in the Pilgrimage of Grace.

*Jervis, John*, 1st Earl St Vincent, see ST VINCENT.

'*Jervis Bay*,' 18-year-old pleasure liner which was transformed during the Second World War into an armed merchant cruiser. She was unarmoured; her 7 and 6-in. guns were kept there to guard convoys. She will live in naval annals for her gallant action on 12 Nov. 1940, against the powerful Ger. pocket battleship *Admiral Scheer*, in which she saved 34 of a convoy of 38 ships when they were attacked without warning by the Ger. ship. The *J. B.* sailed out against the battleship alone. Her object was not the hopeless one of sinking the *Admiral Scheer*; there was no hope even of inflicting material damage. The object was to gain time to give the convoy a reasonable chance of escape. This the *J. B.* and its crew achieved after a 2 hours' fight. Her death roll was 190. Some 65 survivors were rescued, the ship being sunk. Her captain, E. S. Fogarty Fegen, R.N., was awarded a posthumous V.C.

Jeshurun occurs 4 times in the O.T. as a designation for Israel (q.v.). It has been described as a sort of 'pet name,' meaning literally 'the righteous little people.'

*Jesi*, see JESI.

Jesmond, see NEWCASTLE UPON TYNE.

Jessamine, see JASMINE.

Jesse, Edward (1780-1868), writer on natural hist., b. Hutton-Cranswick, near Halifax. He lived for a time in Richmond Park, and in 1830 was appointed deputy surveyor of the royal parks. His works include *Gleanings in Natural History* (in 3 series), 1832, 1833, 1835, *An Angler's Rambles*, 1836, and *Lectures on Natural History*, 1861.

Jesse, Frinwyd Tennyson, novelist, a great-niece of Lord Tennyson, the poet. During the First World War she was a freelance newspaper correspondent, and after the armistice she worked for the National Relief Commission. In 1918 she married H. M. Harwood, doctor and playwright, and they collaborated in a number of plays, including *Billeted*, 1920, *The Pelican*, 1926, and *How to be Healthy Though Married*, 1930, as well as in a series of war-time letters of the Second World War, collected as *London Front*, 1940, and *While London Burns*, 1942. Her novels include *The Milky Way*, 1913, *Beggars on Horseback*, 1915, *Secret Bread*, 1917, *The White Riband*, 1921, *Tom Fool*, 1926, *Moonraker*, 1927, *A Pin to See the Peepshow*, 1934, *Act of God*, 1936, and *The Alabaster Cup*, 1950.

She also pub. sev. collections of short stories.

**Jesse Window**, stained-glass window displaying the 'Tree of Jesse,' i.e. a genealogical tree showing the descent of Christ from the royal house of David, who was the son of Jesse. There are medieval examples at the cathedrals at Wells and Chartres, and in the abbey-church at Dorchester, Oxon.

**Jessel**, Sir George (1824-83), judge, b. and d. in London, was of Jewish extraction. He was called to the Bar in 1847, made a Q.C. in 1855, and entered Parliament in 1868, as a Liberal. He became solicitor-general, was knighted, and made privy councillor and master of the rolls in 1873.

**Jest-books**. There are 2 kinds of J.—compilations of witty sayings and practical jokes ascribed to some particular wit to ensure their sale and popularity, and collections of *facetiae* admittedly brought together from various sources. Numbers of typical jests and practical jokes probably existed independently throughout all countries.

The following famous J. may be mentioned: *Tarlton's Jest: a Hundred Merry Tales* (c. 1525, first extant ed., 1611); *The Witty and Entertaining Exploits of George Buchanan*, commonly called *the King's Fool* (Buchanan long being famous as a humorist as well as a humanist); *Joe Miller's Jest-Book, or the Wit's Vade Mecum* (1739, really compiled by John Mottley, 1692-1750). Other similar collections are the *Jests of Scogin*, by 'A. B. of Phisicke Dootour,' 1613; *Tales and Quick Answers, very Merry and Pleasant to Rede* (about 1535); John Taylor, *Wit and Mirth*, 1629, more original than most; *Wit and Drollery*, 1661, by 'the most refined wits of the Age'; *Merry Drollery*, 1661; and *Westminster Drollery, or a choice collection of the newest Songs and Poems both at Courts and Theaters*, by 'a Person of Quality,' 1671. The modern counterpart of these compilations is found in such collections of humorous anecdotes as Bennett Cerf's *Life of the Party*, 1956, and others by him. See also CHAP-BOOKS; GOTHAM, TALES OF THE MAD MEN OF; HUMOUR. See W. Hazlitt, *Shakespeare Jest-Books*, 1876; *Studies in Jocular Literature*, 1890; 'The Literature of Roguery' (in *Types of English Literature*), 1907; W. Jerrold, *Book of Famous Wits*, 1912; F. Kirkman, *The Wits*, 1932.

**Jester**, or **Gestour**, literally, a minstrel or professional reciter of romances, 'gestes' (Lat. *gesta*), or legendary tales. Later 'geste' became a synonym for a witty tale or clever sally, and gestour meant a clownish wit, merry-andrew, or buffoon kept by great people for their amusement, in imitation of the king's 'court fool.' This custom dates from very early times. Court J.s probably existed in England in Saxon times, Hitard, fool of Edmund Ironside (d. c. 1016), being one of the earliest known. Golea, fool of William I, Will Somers, fool of Henry VIII, and Archie Armstrong, fool of James I, are all famous characters. As a court institution fools did not apparently

outlive the Commonwealth in England. Dicky Pierce, the last private fool, attached to Lord Suffolk's household, died in 1728. Court fools are mentioned in the Sanskrit *Ramayana*; Philip of Macedon, Attila, Haroun-al-Raschid, and Montezuma all owned fools, and they flourished especially in the Middle Ages. The majority of professional J.s were by no means half-witted, at least not in later times, but merely assumed the cloak of folly which allowed of considerable licence of speech and behaviour. The traditional dress consists of parti-coloured garments, a fool's cap or hood with cockscomb, ass's ears, and bells, the sceptre (bauble or 'marotte'), and a large collar. See F. Douce, *Illustrations of Shakespeare*, 1839; J. Doran, *History of Court Fools*, 1858; A. F. Nick, *Die Hofund Volksnarren*, 1861; E. K. Chambers, *Medieval Stage*, 1903; J. L. Hotson, *Shakespeare's Molley*, 1952.

**Jesuits**, The, popular name for the Society or Company of Jesus, a religious order of the Rom. Catholic Church, founded in 1534 by Ignatius Loyola (q.v.). The first object of the founder was work in the Holy Land, but the journey thither was made impossible by the Turkish war, and so the Spaniard renounced his first and cherished dream, and offered the services of his band to the Pope in any capacity, but especially as missionaries. At this time the prestige and authority of the papacy were gravely imperilled by the rapid secession of Protestant or Reformed churches, and in this way Loyola came to be intimately associated with what is called the Counter-Reformation. In 1540 he obtained the sanction of Pope Paul III for the new rule of the Society of Jesus, and at Rome in the following year was elected as the first of its generals.

Loyola was a man of indomitable will and forceful personality, and in drawing up the constitutions of the society with his companions he used the greatest care and deliberation, with the result that they have undergone little change since they were finally adopted in 1558. In the training of a Jesuit, soon after his novitiate begins, 30 days are spent in meditation on the *Spiritual Exercises*, a manual which the founder himself composed; they are a systematic presentation of the truths of religion, arranged so as to appeal both to the head and the heart, and so to strengthen the will of the student and purify his motives in submission to God and love of Christ. The novitiate lasts 2 years, and then simple vows of poverty, chastity, and obedience are taken. Those who are to be priests then do 2 or 3 years of philosophy, 5 years teaching in one of the society's schools, 4 years of theology, and, after an interval of sev. years, they have another year of probation (tertian-ship). After the third year of theology the scholastic is ordained priest. The normal period of training is thus about 13 years. Not all J. proceed to solemn profession, which involves a fourth vow, of special obedience to the Pope to go on missions. The secular and menial offices

of the society are done by lay brothers, called temporal coadjutors, who also are bound by the 3 vows. There are no 'secret Jesuits.' The general is elected by the general congregation, in which each prov. is represented by the provincial and 2 elected fathers. He holds office for life, and is advised by a council of 6 assistants of various nationalities, whose recommendations, however, he is at liberty to disregard. The general commits the administration of the sev. provs. to chosen representatives, called provincials, and he also appoints the chief superiors of all novitiates, colleges, and professed houses or residences. A great deal of power is thus concentrated in the hands of the one man; but he cannot change the constitutions.

The main novelty of the new order lay in its abandonment of the daily choir office obligatory on all the older orders and also in complete centralisation. Thus it attained a flexibility hitherto unknown, which soon made itself felt in the Counter-Reformation, of which the J. were the protagonists. The order spread rapidly over Italy, Spain, Portugal, France, Germany, the Netherlands, and sent subjects to England and Russia. In England its foothold was always insecure, owing to the penal laws against all Catholic priests. Its hist. may be divided into 3 periods, namely, the rise, the suppression, and the restoration. In his work of building up the society and disseminating the new ideas and methods, Loyola was assisted by a band of eager disciples, including James Lainez, Francis Xavier, Nicholas Bobadilla, and Francis Borgia, among his own countrymen; Simon Rodriguez, a Portuguese, and Peter le Fèvre, a native of Savoy. So successful was their work that on the celebration of its first centenary the order counted 13,112 members, dispersed over 32 provs. Moreover Jesuit missionaries were sent to all corners of the earth, and wherever they went they carried with them learning and culture, besides the spiritual message of their Church. Thus they sent missions to China and Japan, Brazil and the Portuguese settlements in India, the Philippine Is., California, and Ethiopia, and not seldom suffered martyrdom. Their missions in Paraguay were particularly successful and have earned the praise of historians of all shades of opinion.

By the middle of the 18th cent. the J. were unpopular with all the sovereigns of Europe, and Portugal expelled them by a royal decree in 1759; France and Spain soon followed her example. Finally, Pope Clement XIV, under pressure from the Bourbons and other sovereigns, and hoping thereby to gain their goodwill, issued his brief *Dominus ac Redemptor Noster*, by which the society was suppressed throughout the world (1773); but it was not enforced by Catherine the Great in Russia, where the society continued its activities. At this time there were 61 novitiates, 176 seminaries, 689 colleges, 359 residences and professed houses, and 275 missions in heathen countries; the

membership was estimated at 22,500. The suppression, however, was only temporary; in 1814 Pope Pius VII restored the J. everywhere, after having approved them locally in Russia (1801) and Naples (1804). The society has never regained its former political influence, but its sphere of religious influence is greater than ever. To-day only in Switzerland are the J. formally and by name forbidden to have estab. In England they worked in the 16th and 17th cents. under the shadow of the penal laws which imposed death on all Catholic priests. Since these were relaxed and all religious communities were tolerated they have estab. sev. houses—including Beaumont College (Old Windsor) and Stonyhurst College (Lancs). The whole order numbers about 20,000, with 900 in England.

The causes which led to their universal expulsion in the 18th cent. were the activities of the Jansenists (q.v.) and other eccles. opponents, and of the civil powers, for the J.'s power and influence in new and distant lands (e.g. S. America) embroiled them in politics. And, moreover, the doctrine that the Pope is Christ's vicar on earth, and therefore that the first duty of the true Catholic is complete obedience to his word in spiritual matters, was improperly stretched by some J. (and others) into the temporal domain. The lawfulness of tyrannicide was formally taught by only one Jesuit of eminence, Mariana, and so to teach was forbidden to members of the society under severe penalties from about 1600. But from it arose their actual or suspected complicity in a number of conspiracies and plots. They were believed to have had a hand in the Gunpowder Plot, in the formation of the Ligue de Guise, in the revocation of the Edict of Nantes, and in the outbreak of the Thirty Years War. It is clear that the govs. of Europe looked on the J. as a menace to the state; in particular, sovereigns were frightened by Jesuit opposition to the new-fangled doctrine of the 'divine right of kings.' Obedience was always a cardinal virtue of the J.; throughout every grade of the society the word of a superior is law in all matters that are not sinful. The resulting solidarity of the body made it a further object of fear and suspicion to kings and to many lesser people, while its skill in casuistry was the chief ground of attack in Pascal's *Lettres Provinciales* (1656-7). And a certain tendency among some J. to use worldly and intellectual rather than purely spiritual means of compassing a worthy end earned much dislike for them. It became a common impression that the J. taught that 'the end justifies the means,' though it is entirely unproved that any Jesuit ever did so. The society had no official connection with the Sp. (or other) Inquisition, and in some places (e.g. Paraguay) definitely opposed it. The self-devotion, enthusiasm, and, above all, the zeal for thorough and scientific education which members of the society have continued for cents. to show cannot fail to impress the student, not only of hist., but of the more intimate



field of human psychology, and to secure some measure of sincere admiration. Both the scientific works of its members and their conduct of boys' schools have been a very definite contribution to the world's intellectual progress. See *Rules of the Society of Jesus*, 1863; F. Parkman, *The Jesuits in North America*, 1868; E. Taunton, *History of the Jesuits in England*, 1901; T. J. Campbell, *The Jesuits, 1534-1921*, 1923; La Farge, *The Jesuits in Modern Times*, 1928; Goodier, *The Jesuits*, 1928; Broderick, *The Origin of the Jesuits*, 1940; and *The Progress of the Jesuits*, 1940; M. P. Harney, *The Jesuits in History*, 1941. Also, bibliography of IGNATIUS LOYOLA (q.v.).

Jesuits' Bark, see CINCIONA.

Jesus, Son of Sirach, see ECCLESIASTICUS.

Jesus Christ, in Christian theology the Second Person of the Holy Trinity (q.v.) incarnate. The name Jesus is the Gk form of Heb. *Jehoshua* and means 'the Lord is help' or 'salvation'; Christ, derived from the Gk *Christos*, means 'anointed.' See also HOLY NAME.

Our knowledge of the life of Christ depends almost entirely upon the documentary records of the N.T., though there are a few references to Him in early non-Christian writings, e.g. the Talmud, Josephus, Tacitus, Philo, and Pliny (qq.v.). These latter dispose of any doubts as to the historicity of Jesus. The first N.T. evidence for the life, death, and resurrection of Christ and their immediate consequences is to be gathered from the early Pauline epistles, Thessalonians I and II, and Galatians. The references are implicit and incidental, but in I Cor. xi and xv (c. AD 55) St Paul quotes 2 passages from the oral catechesis which clearly date back to the time of his conversion in about AD 35. For the dating of the Gospels see MATTHEW, THE GOSPEL ACCORDING TO ST; MARK, THE GOSPEL ACCORDING TO ST; LUKE, THE GOSPEL ACCORDING TO ST; JOHN, THE GOSPEL ACCORDING TO ST; and the articles on BIBLE, CHRISTIANITY, and GOSPELS. It must, however, be remembered that the Gospels are doctrinal rather than biographical.

Behind the written records, whose historical accuracy is supported by the strongest internal evidence, there exists the oral tradition, going back to the earliest days. The first chapters of the Acts also embody primitive records and reminiscences which testify to the life, death, and resurrection of Jesus. The following paragraphs summarise the Gospel account of the earthly life of Jesus. At Nazareth in Galilee there lived a virgin named Mary, espoused to Joseph, a carpenter, of the family of David. To her came the archangel Gabriel with the message that she should conceive by the power of the Holy Ghost and not in the ordinary course of nature (see ANNUNCIATION), and bring forth a son Jesus, who should be the Son of God. So it came to pass. But the requirements of an official census obliged Joseph and Mary to travel

to Bethlehem in Judaea. Here, in a stable, Jesus was b., and to Him came shepherds and Magi offering their worship. The visit of the Magi brought danger, and almost immediately the Holy Family had to flee into Egypt until the death of Herod, when they returned and dwelt again at Nazareth. There is now general agreement that the estab. chronology dates the Nativity too late, and that Christ was b. at least 4 years earlier than is implied by our system of chronology. Only one other incident of Christ's early life is told us: the finding of the boy Jesus in the Temple, listening to and questioning the doctors.

Except for this, the canonical gospels are silent concerning the hidden years at Nazareth. But from the gibe made when He visited Nazareth later in His ministry, 'Is not this the carpenter?' we gather that He quietly pursued the trade of Joseph, until (apparently after His foster father's death), at the age of about 30, He set out on His brief public ministry. From the synoptics we should gather that this was virtually confined to Galilee and lasted only 1 year. But the fourth Gospel speaks of 3 passovers spent at Jerusalem. This seems more probable. The beginning of the ministry of Jesus is closely connected with the preaching of His cousin, John the Baptist. Jesus came to him for baptism, and John bore witness to Jesus, of whom he declared himself to be merely the forerunner. Jesus wandered for 40 days, fasting and praying in the deserts of the Lower Jordan. During this period occurred the Temptation. There followed a brief ministry in Judaea, during which some of the future 12 apostles from among John's disciples met Jesus. Then, after John had been thrown into prison by Herod, Jesus returned to Galilee. We hear of only one visit, and that an unsuccessful one, to His native city of Nazareth. Capernaum, called in Matt. ix. 1 'His own city,' seems to have been the centre of His mission.

His ministry was of two kinds: a public preaching to the people, and the private instruction of His disciples. He set out on a tour through Galilee, proclaiming His mission. In the words of Isaiah: 'The Spirit of the Lord is upon me, because he appointed me to preach good tidings to the poor.' Closely connected with Christ's teaching was His ministry of healing. 'He hath sent me to proclaim release to the captives and recovering of sight to the blind, to set at liberty them that are bruised' (see MIRACLES). Two things He required, repentance and faith; and, as He foresaw, His message (like John's) appealed to the poor and humble, rather than to the rich and the religious authorities. Christ's attitude to the religious leaders of His time was almost entirely one of condemnation. He did not teach that they should be disregarded; what they commanded was to be observed and done, but they were blamed for allowing their preoccupation with minute details to usurp the claims of weightier matters. Against one particular point in the

Pharasaic formalism, the strict observance of the Sabbath day, His teaching is summed up by His words: 'The Sabbath was made for man, not man for the Sabbath.' And in reply to a question from a doctor of the law, He said: 'Thou shalt love the Lord thy God with thy whole heart, and with thy whole soul, and with thy whole mind. This is the greatest and first commandment. And the second is like unto this: thou shalt love thy neighbour as thyself. On these 2 commandments dependeth the whole law and the Prophets' (Matt. xxii. 37-40).



W. F. Mansell

HEAD OF CHRIST, BY LEONARDO DA VINCI

Though the Gospel is full of the tender love and sympathy of Christ for all that is good in man, we must not overlook the sterner side. 'If any man will come after me, let him deny himself, and take up his cross, and follow me.' In His teaching Jesus used the common E. device of parables. Large numbers of the parables of Jesus are collected in the synoptic gospels, all of a homely kind, likely to appeal to people of all classes. Even more important, however, was the work of training His chosen Apostles, as is shown by the antithesis continually presented between the disciples and the multitudes. We see also the succession of attempts made by Jesus to secure the requisite time and quiet for the purpose. As the opposition of the religious authorities became more and more overt, Jesus withdrew more and more to devote Himself to this work. The excursion into Tyre and Sidon and to Caesarea Philippi, on the occasion of St Peter's confession of Him as Messiah and Son of God, were prompted also by a desire to avoid His powerful enemies. The slow journey down to Jerusalem for

the last passover was occupied chiefly in instruction, mainly on the subject of His approaching death, which the disciples remained tragically unable to grasp.

So the Jewish religious and national leaders took counsel with the Herodians (a political party in support of the Idumean Herod) against Jesus, to put Him to death. Jesus entered Jerusalem in triumph, as all 3 synoptics tell us, specifically fulfilling a Messianic prophecy. The enthusiasm of the people infuriated the religious leaders, and His immediate death was resolved upon. His nights He spent at Bethany, and each day the little party went into Jerusalem. On the evening of the Thursday He held the Last Supper, the mystic feast, the actions of which have been repeated by all Christian communities from that time till now in remembrance of Him. Then followed the Agony in the Garden, and the story of the Passion begins. This is narrated at considerable length by each of the 4 evangelists, and though there are certain notable differences, especially in the account given by St John, there is agreement in the main outline. All are agreed that it was by Judas Iscariot, one of the 12, that Jesus was betrayed, and that He was tried in great haste. Before the Rom. governor it was the political aspect of the Messianic claim that was used against Him, and by unscrupulous pressure on the reluctant Pilate His condemnation was secured. All the 12 had forsaken Him and fled, while Peter had actually denied his Master. Christ was hurried to the hill of Golgotha. But He was too weak from exhaustion to bear His own cross, and He was aided by Simon of Cyrene. At Golgotha He was crucified, with the title above His head 'King of the Jews.' In 3 hours He was dead, and by permit obtained from Pilate that same day He was buried on the spot, in a tomb guarded by Pilate's soldiers. Then on the third day He rose again and appeared to them singly and collectively, not as a ghost but as a complete human being, with a body that was solid and tangible, that could eat and talk and walk and speak, yet a body that possessed pre-natural powers. Even more difficult to evade than the visions is the evidence of the empty tomb. After 40 days of this extraordinary intercourse with His disciples Jesus appeared, and disappeared for the last time, on the Mt of Olives, ascending symbolically up to heaven, promising to send them the Holy Spirit—which He did 9 days after, on the Feast of Pentecost (q.v.).

The early Church discounted the authenticity of any likeness of Christ attributed to persons who had seen Him. Thus the early pictures are symbolic and the traditional likeness begins to appear only after some cents. One tradition attributed portraits of our Lord to St Luke; another tradition embraces the 'images not made with hands,' notably the famous 'Veronica' likeness and the Holy Shroud of Turin (q.v.).

The earthly life of Jesus was only a beginning. St Luke, for example, at the

beginning of the Acts of the Apostles, speaks of his former treatise in being concerned with all that Jesus *began* both to do and to teach until the time of His Ascension. In this sense the story of the life of Christ is still continuing, as He still works in the Church of which He is the Head. The teaching of the Church on the Person of Christ is dealt with in the main articles to be found listed under the heading CHRISTIANITY. Individual shorter articles will also be found, under their separate headings, on every aspect of Christian life and civilisation. For other views of the life of Jesus see the article RELIGION and the other religions referred to therein, BRAHMA; BUDDHA; ISLAM; JEWS; JUDAISM; MOHAMMEDANISM; see also the articles AGNOSTICISM; ATHEISM.

Innumerable lives of Christ have been written through the ages by both believers and unbelievers, and it would be impossible even to select a bibliography. The fundamental teaching of the Church on the subject is to be found in the Catechism. The Gospels themselves are to be found in every trans. of the N.T., among which, in English, are the Douai and R. A. Knox versions (Rom. Catholic), and the Authorised, Revised, and Moffat versions (Anglican). Each Christian denomination (on which separate articles will be found) lists and publishes its own factual and instructional literature. See also the missals, prayer books, and other devotional works.

**Jesus College**, Cambridge, founded in 1496 by John Alcock, Bishop of Ely. Its site was previously occupied by a Benedictine nunnery dedicated to St Radegund. Its full name is 'The College of the most blessed Virgin Mary, St John the Evangelist, and the glorious Virgin St Radegund,' but it has always been called 'Jesus College' after the dedication of the Chapel. Architecturally Jesus is one of the most interesting of Cambridge colleges, for Alcock retained and adapted a considerable part of the nunnery buildings. The Chapel is for the most part Early Eng., but there are traces of Norman work. Most of the windows are by Burne-Jones. Archbishop Cramer was an early fellow, and Laurence Sterne and S. T. Coleridge were at the college.

**Jesus College**, Oxford, was founded in 1571 by Queen Elizabeth I. Its first benefactor was Hugh ap Ilico (Price), a native of Brecon, and it has always had a close connection with Wales. Its earliest buildings, facing Turl St, were completed in 1574, but were entirely reconstructed in 1856. The hall dates from 1620, the chapel from 1621, and the library from 1679. Among famous old members are Sir Leoline Jenkins, J. R. Green, and Col. T. E. Lawrence.

**Jet**, kind of lignite or anthracite, which can be easily cut and carved, and takes a fine polish. It probably takes its name from Gasgas, in Lycia, where, according to Pliny, a similar substance was found. J. was used in Britain for ornaments from prehistoric times. Necklaces, beads, buttons, etc., of the Beaker period of the Bronze Age, of the Neolithic period, and

of the Early Iron Age are known, and Gaius Julius Solinus (3rd cent.) alludes to the abundance of J. in Britain. Caedmon, too, refers to the J. It was probably obtained from the coast of Yorks and especially Whitby, where the finest quality is still found. It is also imported from Spain, but Sp. J. is generally less hard and lustrous than that found at Whitby. It is found, too, in the dept of Aude in France, and in the Lias of Württemberg, and is known in many localities of the U.S.A. It is chiefly used for mourning ornaments, but imitations occur in vulcanite and in glass.

**Jet Propulsion**, form of motive power particularly applied to aircraft, by means of reaction to the mass of air ejected at the rear of an engine. This form of propulsion is a direct application of Newton's third law of motion (to every action there is an equal and opposite reaction, *q.v.*) and the basic principles were first stated by a Fr. engineer, René Lorin, who pub. patents in 1913. Although not developed to practical use, the first design contained the essentials as practised to-day and the latest high-speed engine, the ram-jet (or athodyd), is exactly like the original simple design without working parts shown in the diagram. Efficient propulsion by jet reaction can only take place at high speeds, and it was not until aircraft capable of more than 400 m.p.h. were developed that the system was of more than academic interest.

In 1930 Whittle (then a R.A.F. cadet, now Air Commodore Sir Frank Whittle) had the idea of using a gas turbine to produce the large air-flow necessary for J. P., and, with little support until 1937, he worked on a series of engines, of which the W 1 eventually flew in the Gloster E 28/39 on 14 May 1941. The other pioneer work was done independently by the Ernst Heinkel firm in Germany, where experiments started in 1939, and the first engine, the Heinkel S3B, was flown in the experimental He. 178 monoplane on 27 Aug. 1939. After the first successes other firms in Britain and Germany were given instructions to develop J. P. engines, and by the end of the war many existed in both countries; the Germans were the first to put jet aircraft into service but the engines were much less reliable than Brit. types. Development in France was started by Rateau before the war, but was delayed by the occupation; while in the U.S.A. work was not started until 1941, when a Whittle engine and complete drawings were flown across the Atlantic.

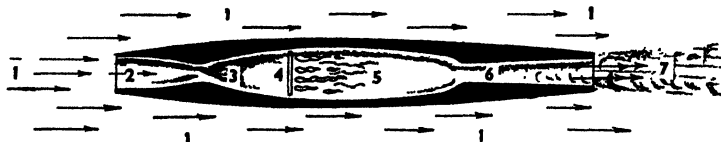
Ignoring the mechanics of the different systems (see AERO-ENGINES) J. P. works on the principle of taking air into the engine, compressing it and reducing its velocity to a speed suitable for combustion, mixing with fuel, burning, and thereby expanding the mixture and increasing its kinetic energy, before finally ejecting it at high speed. Although the reaction is measured as pounds of thrust, propulsion is *not* the result of the jet pushing on the surrounding air; it is purely a reaction to the escaping jet.

Effectiveness of the jet depends upon the initial air compression (present average is about 4:1), and if a turbine engine is used many thousand horse-power from the gases must be absorbed in the turbine driving the compressor, while with a ram-jet, where compression is the result of forward speed only, it must be high enough to give the initial compression of 4:1 before reasonable return of power for fuel expended can be obtained. In both cases high air speeds (over 400 m.p.h. in the first and over 600 m.p.h. in the second) are necessary, so that the high air resistance to the aircraft means large fuel consumption to provide the necessary power.

Rockets (q.v.) are J. P. engines which carry their own oxygen—either in the fuel, or separately in liquid form—and are therefore independent of atmosphere for the air supply for combustion. Rockets have been used successfully for missiles

Jever, Ger. tn in the *Land of Lower Saxony* (q.v.), 112 m. NW. of Hanover (q.v.). It is one of the oldest tns of E. Friesland, has an anct castle (now a museum), and is known for its beer. There is also woollen milling and meat processing. Pop. 11,000.

Jevons, William Stanley (1835-82), economist and logician; b. Liverpool. At 15 he was sent to London to Univ. College. He already believed that important achievements as a thinker were possible for him. Whilst at Univ. College, his favourite subjects were chem. and botany. He unexpectedly received the assayership to the new mint in Australia and accepted the post because in financial need. He remained in Sydney for 5 years. In 1859 he again entered Univ. College as a student, taking the courses of the B.A. and M.A. degrees of the Univ. of London. Not long after taking his



PURE JET PROPULSION

The original propulsive duct suggested by René Lorin in 1913, which still expresses the basic principles, although details vary.

1. Air stream due to motion.
2. Air intake.
3. Diffusor to reduce air speed and increase pressure.
4. Fuel injectors.
5. Combustion chamber where the heat and expand.
6. Outlet venturi where kinetic energy of gas is converted from pressure to velocity.
7. High speed propulsive jet of hot gases.

(Ger. V.2 long range, anti-aircraft and ground short range), for the propulsion of fighter and research aircraft, and are frequently used to assist the take-off of heavily loaded aeroplanes. Characteristics are very high thrust for short periods.

All forms of J. P. engine are simpler and lighter for their power than other heat engines, but fuel consumption of the pure jet is high, and when a long range is needed the power of the engine is usually put into the turbine, which is then geared to drive a propeller. This form of engine is known as a propeller-turbine or turbo-prop. See also AERO-ENGINES and SUPERSONIC SPEEDS.

Jethou, one of the Channel Is., subject to Guernsey (q.v.). It is an infertile, granite is. 1 m. in circumference, separated from Herm by a narrow channel, and sometimes inhabited by a single family.

Jeton, or Jetton, round piece of metal or ivory, which was formerly used in card games for counting, as well as a pass to the gaming tables.

Jetsam, see FLOTSAM.

Jette, or Jette-Saint-Pierre, NW. suburb of Brussels, Belgium. It is engaged in agriculture and manuf. of chemicals, enamelled goods, chicory, train oil, and cigarettes. Pop. 30,800.

M.A. degree, he was appointed tutor at Owens College, Manchester. In 1866 he was elected prof. of logic and mental and moral philosophy, and Cobden prof. of political economy there; in 1876 he exchanged the Owens professorship for the political economy chair in Univ. College, London; in 1880, owing to ill health, he resigned. He wrote a number of books on logic and political economy between 1864 and 1880. His letters and jour. were ed. by his wife and pub. 1886. See L. Liard in *Les Logiciens anglais* (vi), 1878.

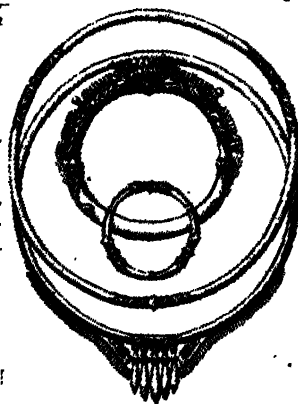
Jew, The Wandering, legendary Jew who, for an insult offered to Christ at the time of His Passion, is doomed to wander eternally throughout the world. The story is of no antiquity and does not appear at all in the E., no reference being made to it even in the great work of Jean d'Outremeuse. The tradition varies considerably, and no 2 versions agree as to the name of the Jew. The chronicle of St Albans Abbey for 1223 tells of the visit of an Armenian bishop who gave an account of the W. J. under the name of Kartaphilos. According to this version, he was a door-keeper of the Judgment Hall, and as Jesus passed out he struck Him saying: 'Go, Jesus, go on faster,'

to which the Christ replied: 'I go, but thou shalt tarry till I come again.' Matthew Paris in 1228, continuing the same chronicle, tells us that Kartaphilos was baptised by Ananias under the name of Joseph, and henceforth, at the end of every 100 years, falls into a trance from which he wakes to find himself at the age of 30, the age at which he was when he struck Jesus. The 'rhymed chronicle' of the W. J. was written in 1242 by Philip Mouskes, afterwards Bishop of Tournai. The version given by Paul von Fitzen, Bishop of Schleswig, in 1547 has it that Jesus, overborne by the weight of His cross, stopped to rest at the door of a cobbler, by name Ahasuerus, who pushed Him away saying: 'Away with you! Away!'; to which Jesus replied as in the version previously given. In Ger. legend the W. J. is associated with Johann Butadaeus (or Bultadaeus), who is alleged to have been seen in Antwerp in the 13th, 15th, and 16th cents. (Menzel, *History of German Poetry*). In Fr. legend he is called Lakedion or Laquedem (Mitternacht, *Dissertatio in Johan.*). The Fr. novelist Alexandre Arnoux in July 1931 issued a book, *Carnet de Route du Juif Errant*, in which the eternal wanderer tells some of his supposed adventures in various ages and lands. In Eugène Sue's Fr. novel *Le Juif Errant*, 1845, the Jew is named Salathiel, as also in G. Croly's novel *Salathiel*, 1827.

**Jewel**, John (1522-71), Bishop of Salisbury, b. Berryarbor, near Ilfracombe. He was educ. at Barnstaple and Oxford, where he became a lecturer. He defended the Eng. Church against Rome in his *Apologia Ecclesiae Anglicanae*, 1562. He spent some time abroad during Mary's reign, but returned to England on the accession of Elizabeth and was made Bishop of Salisbury.

**Jewellery**, derived from O.F. *jouel*, has in France 2 distinct branches concerned in the making of personal ornaments. These are *Bijouterie*, the working of ornaments in gold, silver, or any other metal, mineral, or material, often set with diamonds; and *Joaillerie*, which is concerned in the making of mounts, with open backs, and setting therein fashioned precious stones, mainly diamonds. The making of J. is the oldest of the crafts, an ornament for the head probably being the first type, or a necklace made of almost any material, threaded berries, stones with natural holes, shells, bone, teeth, amber, jet, etc., colour, as to-day, playing an important part in the crude conceptions of early man. More than 4000 years have elapsed since the goldsmiths of Ur of the Chaldees produced very delicate examples of the jeweller's art, using practically the same methods as are employed to-day. Like later Gk and Etruscan goldsmiths they relied almost entirely on gold for effect. The consummate craftsmanship of these people, as shown in the museums, included wire and grain work which has never been equalled and delicately plaited broad bands comparable to the admired Milanese bracelets of to-day, but infinitely

finer. Gold and semi-precious stones were used by Egyptian jewellers 4000 years ago to give notes of colour, and glass beads were also being made. Finger rings, necklets, earrings, brooches, and bracelets are all found. Finger rings, like the 'signet,' served a useful purpose; men's neck chains were signs of authority, and remain so to this day; bracelets were used for decorative and offensive as well as defensive purposes. Gold and silver, enamelled and set with bright-coloured gem-stones, distinguish Byzantine, A.-S., Medieval, and Renaissance J., as also that produced during the weak Gothic



ETRUSCAN ORNAMENTS IN GOLD  
FOUND IN RHINELAND

revival about 1830 and, to some extent, in the rococo period of the Victorian era. To the opening up of the diamond mines in Golconda and Hyderabad in the 17th cent. may be traced the greatest revolution which has taken place in the design and making of J. Prior to this, diamonds were polished on their natural faces, and the highest form of cutting was the 'table cut.' Then came the 'rose,' flat at the back, with small facets on the curved top, followed in 1643 by the *taille-en-scize* 'rose,' which was methodically cut with 16 facets. The invention of what is termed the 'brilliant' by Vincenzo Peruzzi at the closing of the 17th cent. made a notable change, though slow, in the design and construction of J. *Joaillerie* began to supersede *Bijouterie*, and the diamond definitely commenced its domination in the seventies of the 19th cent. The discoveries of the great mines in S. Africa greatly strengthened a growing fashion, the diamond mounter became the more important factor, and the revolution became complete so far as the larger and finer pieces of J. are concerned. Diamonds were first set into very slightly conventionalised floral forms, the base of which was

silver-fronted gold. Then another change took place, and platinum superseded the lumpy and not very rigid mount which was so easily affected by handling and atmosphere. Gradually design changed and from the naturalistic floral type grew J. with a flavour of the Renaissance, and ultimately the saner vogue we see to-day. In this diamonds and fine coloured gemstones are used as definite units in a design, and not merely to fill an area. Meanwhile the art of the original type of jeweller had been kept alive from the end of the 19th



PENDANT WORN BY QUEEN MARY  
OF ENGLAND (1553-8)

The painting of the queen, by Antonio Moro, in the Prado, Madrid, shows her wearing this historic jewel. The pearl was found in 1513, and the pendant was variously in the possession of Ferdinand V of Spain, Queen Mary, Napoleon III, and (1931) the Duchess of Abercorn. It is known as 'La Pelegrina.'

cent. up to 1925 by such men as René Lalique, René Foy, and Georges Fouquet in France, Hugo Schafer in Germany, and Henry Wilson in England, who considered artistic handling of material more than its intrinsic value. To-day the works of Carl Fabergé (1846-1920), jeweller and goldsmith to the Imperial Court of Russia, enjoy a vogue as an exquisite product of a recent but extinct civilisation.

After the Paris exhibition of 1925, jewellers discarded nature as the source for design and drew their inspiration from geometrical motifs. This phase has passed, and present trends have returned to floral, bow, and ribbon motifs. Increasing use of gold in form of coloured alloys, red, white, green, grey, with platinum, is evident. Palladium, because of its lightness, is being used. The prin. types of cut in vogue are, besides the brilliant and rose, the emerald or trap-cut, marquise, and in

particular a lavish use of narrow, rectangular diamonds, called baguettes when small, and bâtons when somewhat larger. An innovation dating from the Paris exhibition of 1937 is 'invisible' setting, the massing of cut gems without sign of the metal mount showing at all. The prin. centres in which J. is manuf. are London—at one time Clerkenwell was the centre, but during the last quarter of a cent. the industry has gradually migrated to the W. End—Birmingham, Paris, Brussels, Vienna, Berlin, Pforzheim, and Hanau. The lost wax method of centrifugal casting, a modern adaptation of an ant. method, is now widely used in the mass production of J. Intricate and delicate patterns can be reproduced in minute detail from a master pattern. Much of the highly skilled craftwork is thus eliminated, little remaining to be done but setting and polishing. See C. J. Davenport, *Cantor Lectures on the History of Personal Jewellery from Prehistoric Times*, 1902; H. Clifford Smith, *Jewellery*, 1909; G. F. Herbert Smith, *Gemstones*, 1912, 1949; Joan Evans, *English Jewellery from 5th Century A.D. to 1800*, 1921; W. T. Baxter, *Jewellery, Gem Cutting and Metalcraft*, 1938; A. Selwyn, *Retail Jewellers' Handbook*, 1945, 1955; L. Wiener, *Hand-made Jewellery*, 1948; Ronald Jessup, *Anglo-Saxon Jewellery*, 1950; Ernie Bradford, *Four Centuries of European Jewellery*, 1953. See also GEM.

Jewett, Sarah Orne (1849-1909), Amer. novelist, b. S. Berwick, Maine, daughter of a doctor. She had little formal education, but read widely. Her first story was pub. in 1869, and in 1877 she estab. her reputation as a writer with *Deephaven*, a series of sketches dealing with her own countryside. She followed this with over a dozen novels and collections of short stories, of which *The Country of the Pointed Firs*, 1895, is reckoned the best, depicting the prov. life of New England; among others were *A Country Doctor*, 1884, *A Marsh Island*, 1885, *The King of Folly Island*, 1888, *Tales of New England*, 1890, and *The Tory Lover*, 1901. She was made a D.Litt. of Bowdoin and her letters were pub. in 1911. See biography by F. O. Matthiessen, 1929.

Jewish Autonomous Oblast, in the Khabarovsk Kray of the Russian Far E., situated in the Amur bend W. of Khabarovsk, partly forested, with rich mineral resources. Area 13,800 sq. m.; pop. (1939) 168,000, mostly Russians and Ukrainians. There is gold-mining and a timber industry, also grain and dairy farming. The cap. is Birobidzhan. Russian colonisation in the area started in 1852; Jewish, 1928; the J. A. O. was formed in 1934. See W. Kolarz, *The Peoples of the Soviet Far East*, 1954.

Jews. The early hist. of the Hebrews has been given in the article ISRAEL, and here a sketch will be given of the hist. of the Jewish people from the fall of Jerusalem in AD 70 until the present day. The fall of Jerusalem did not mean that the J. were doomed. The J. rebelled again in AD 115-17, this time in Babylonia, Egypt,

Cyrenalca, and Cyprus (particularly in the last 2 ters.) and in 132-5. The discontent and desperation of the J. of Judaea increased by the fact that Hadrian contemplated the estab. of a pagan city on the site of Jerusalem, led to the general revolt in the year 132 under Bar Cochba (q.v.), supported by Rabbi Akiba. He kept up the revolt for 3 years. The rising was so successful that Rome determined to make a repetition impossible and in AD 135, Jerusalem was destroyed and its site ploughed up. The ter. of Jerusalem was turned into a Rom. colony under the name of Aelia Capitolina, and no Jew was allowed even in its vicinity. The name of Jerusalem was henceforth to be obliterated from the mind of man. Many of the pop. were put to death and many more carried off to slavery. From that time Palestine gradually sank into obscurity. The most violent methods were used by the Romans to reduce the J., and all J. throughout the Empire shared in the oppression. One of the most far-reaching effects of the Judeo-Rom. wars, and of the subsequent destruction of the Jewish national centre, was the wide dispersion of that people, which has remained to this day one of its distinguishing features. Even before the disaster of 135, however, large communities had already grown up in Babylonia, Egypt, Syria, the Yemen, and many other countries.

The Babylonian J. had formed a separate community since the time of the Exile, and had spread far and wide over the domains of the Persian Empire. These J. were at first of little importance from the religious point of view, but their intellectual status was raised by the arrival of leading personalities of Judaea deported by Nebuchadnezzar to Babylon in the 6th cent. BC. Babylonian J. were headed by the 'Prince of the Captivity,' who claimed descent from the house of David, and lived in semi-regal state. In the same period and in the cents. which followed, large numbers of J. had also settled in Egypt, where they also formed military colonies for the defence of that country, such as Elephantine. In the later cents. they congregated at Alexandria. Here had arisen the philosophic schools of Hellenic Judaism such as that of Philo Judaeus. It is, indeed, significant that the Egyptian J., unlike the founders of the Hasmonaean (see MACCABEES) State, did not resist 'assimilation.' On the contrary they became completely 'Hellenised,' abandoning their anct tongue for Greek and adopting Gk names. The Septuagint, the earliest Gk trans. of the Hebrew, was their work. The J. had also travelled far and wide throughout the W., and everywhere they had met with a considerable measure of toleration. After the fall of Jerusalem, the J. were left stunned under the catastrophe. The rally of Judaism is due largely to Rabban Johanan ben Zaccai, considered as a disciple of Hillel, who, having escaped from the besieged city, obtained permission from Emperor Vespasian to make Jamnia (Jabneh) his new centre. This place then became the

seat of a great rabbinical academy, and of the reconstructed Sanhedrin. Here the study and development of the Torah received a fresh impetus, and the canon of Jewish sacred scriptures was finally settled by Rabbi Akiba. The great product during the first 200 years of Jewish scholarship is the Mishnah, a collection of the results of the study of the Torah in Palestine, which may be considered a *corpus* of Jewish law. This was incorporated 300 years later in the Talmud (q.v.).

It is sad to record that a period of years of oppression began for Judaism with the accession of Constantine (after having extended to Christianity all the privileges and rights that hitherto paganism alone had enjoyed), though at first the statutes directed against the J. aimed more at restriction than at persecution. After the div. of the empire, the J. in W. Europe were deprived of the privileges granted them by previous emperors, and the canons of the Church councils of the period throw much light on the way in which they were regarded. They had a favourable period, however, under the Carolingians.

Meanwhile the spiritual leadership of Jewry passed into the hands of Babylonian J. who showed much intellectual activity. In 614, when Jerusalem fell into the hands of the Persians, the J. entered the city with the conquerors; but their triumph was short-lived. Everywhere, however, both in E. and W., we find them most active in commerce, engaged everywhere in ministering to the needs and luxuries of civilisation. The period from about 700 to 1100, though one of the darkest ages in Europe and of growing persecution of the J., has been described as the 'golden age of Middle Eastern Judaism,' and, during this period (apart from the great E. Jewish luminaries, such as the Gaon Saadia (*Arabic* Sa'id) ben Joseph, of Fayûm (Upper Egypt), 892-942), one particular band of J. stands out in great prominence. The J. of Spain were, during that period, the representatives of the world's greatest culture. Here they flourished under the favourable rule of Islam. The rise of the Hispano-Jewish colleges dates from the arrival at Córdoba of Moses ben Enoch, who had been ransomed from slavery by his co-religionists. Aided by the munificence of Chasdal ibn Shaprut, the schools of Córdoba rapidly became flourishing centres of letters and of Talmudic study.

In all depths of learning J. now became prominent. Menachem ben Saruk and Dunash ben Labrat were poets and early students of Heb. grammar, who were soon superseded by Johan ibn Janach, the great master of Heb. philology, who died in 1050. Some of the most beautiful of Heb. poetry was also produced at this time. The foremost of the Payetanim or liturgical poets was Eleazar ben Kalir, whose poems have now a place in the service of certain Jewish holy days. One of the greatest of Jewish poets was Solomon ibn Gebirol (1021-70), whose best-known

poem, *Kether Malchuth* (The Crown of Kingdom), has been incorporated into the liturgy for the eve of the Day of Atonement. Judah Halevi (c. 1088-c. 1142) has been described as the greatest Heb. poet since the time of David, and his poems are remarkable for depth of emotion and beauty of expression. Abraham ben Meir (Ibn Ezra of Toledo, c. 1088-1167) was one of the finest Bible commentators. He also visited London, where he wrote an important work. Solomon ibn Gebirol was less famous as a poet than as a philosopher, for he first introduced, indirectly, the Gk philosophy (as interpreted by the Arabians) to the Christians of the Middle Ages. His *Fons Vitae* is a systematisation of the Gk and Arabic philosophy, which formed later an important source of scholasticism. Medieval Judaism culminates in the figure of the intellectual giant Moses Maimonides (q.v.). Though the Sp. schools stand supreme during this period, similar institutions not destitute of learned men are to be found in France and Germany. The greatest of the Franco-Ger. Jewish luminaries was Rabbi Solomon Yis'haki, known (from his initials) as Rashi (q.v.). On the whole, however, Franco-Ger. scholars did not attain to the polish and versatility, as well as the philosophical breadth of view, which distinguished their Sp. brethren, but they possessed in an abundant measure moral earnestness and deep piety.

But during all this period, while Judaism had been producing its ripest fruits of learning in Europe, the clouds had been gathering. Though treated as obnoxious strangers and unbelievers, at least the J. in the Carolingian empire, and even in England and Christian Spain, found some justice and occasional favour as a useful mercantile class in a state of society in which religion and arms were the only tolerable occupations. Regarded by the rulers as a very valuable source of revenue, even as an indispensable adjunct of the pop. and competing with none of them, the J. not only enjoyed the protection of the authorities, but also largely the passive good-will of their neighbours. The Crusades were more instrumental than anything else in changing the condition of the J. for the worse, accompanied as they were by wholesale massacres. The fury which had possessed the crusaders and caused them to attack the 'Saracens of Europe' rather than the Saracens of Asia was felt in the different countries themselves. The J. had always been a separate community dwelling in the land, but not forming part of it, and this isolation led to the levelling of the most extravagant charges against them, which were

by the credulous vulgar. Of these charges, such as that of the slaying of children for ritual purposes, were, strangely enough, identical with those levelled against the Christians themselves during the first cents. of Christianity. Moreover, the wealth of the J. made them fit objects for pillage and spoliation. The J. were excluded from possession of the soil, and from every

honourable profession or handicraft. They were thus driven to money-lending, and in this pursuit acquired a reputation for avarice and extortion only less than that of the sovereigns and nobles who made use of them.

To England the J. came in large numbers with William the Conqueror, and settled in the large tns. In 1144 there was a great disturbance over the accusation made against the J. of Norwich of having slain a Christian boy, known afterwards as St Wm of Norwich, for their Pass-over. Such accusations continually recur in the years that follow, and the case of little St Hugh of Lincoln, narrated by Chaucer in the *Prioresses Tale*, is well known. The most serious event in the hist. of Jewry in medieval England occurred when a deputation of leading J. appeared at Westminster for the coronation of Richard I in 1189. They were attacked by the mob, and a report spread that the king had ordered a general massacre. A very good attempt to carry out this supposed order was made in London and many other tns. The massacre was particularly great in York. In 1290 the J. were expelled from England, not to return until 1656.

In Central Europe, the lot of the J. was even more unfavourable. Only in Rome, under the influence of the popes, and particularly in Turkey and Poland, was any toleration allowed them. In other countries they were perpetually subject to extortion and persecution, and any peace that was given them seems usually to have been merely a breathing time that they might accumulate more material for plunder. They were now kept rigidly apart from Christians, confined to particular quarters of the tns they lived in, later known as ghettos, and often obliged to wear a yellow badge to distinguish them from other people. Many of them, especially in Germany, left their homes and sought refuge in Poland and Lithuania (then in 'union' with Poland), where the J. achieved religious autonomy; regular synodal assemblies (called Va'ad Arba' Arazoth) were convened, which greatly helped to maintain unity. In the early 17th cent. a good deal more than half the J. in the world were congregated in that belt of country. The Polish kings protected them, but the respite was short-lived. In the 10 years (1648-58) of the massacres by the savage Cossacks (q.v.) and in the Polish-Russian and Polish-Swedish wars a great number of J. (250,000 to 500,000) lost their lives. With the 3 partitions of Poland (q.v.) in the late 18th cent. over a million J. came under Russian rule. A sort of territorial ghetto, the Jewish Pale of Settlement, was estab. from the Baltic to the Black Sea near Odessa, and throughout this area the urb. ghetto system was imposed.

It is hardly necessary to speak of Spain during the latter half of the Middle Ages. The atrocity of the Inquisition in that country is a byword. These persecutions in Spain caused many of the Sp. J. to make an outward profession of Christianity,



and, if we may judge from the words of Torquemada, Grand Inquisitor during the latter half of the 15th cent., many of these 'Marranos' (Sp. J. who, outwardly, but not from secret conviction, accepted the Christian faith) held high positions in the Catholic priesthood. Finally it was resolved to expel all J. from the Sp. domains, and in 1492 some 200,000 Sp. J. left their homes and the graves of their forefathers. Some went to Portugal, some to Holland, S. France, or Italy. Others sought a refuge in Ottoman ters., where they were warmly welcomed by the Sultan Bajazet II.

During this period of oppression the learning of the previous age turned to mysticism and the intricacies of the Talmud. To mysticism belongs the Cabbala (q.v.), strange medley of Jewish religious philosophy and spiritual quackery. To the same trend of thought may be ascribed the rise of many pseudo-Messiahs such as Sabbatai Zevi (q.v.). The Reformation did not at first produce any change in the attitude of the Christian states towards their Jewish subjects. But the spread of the New Learning led to an intelligent interest being taken in the productions of Jewish scholars, and a landmark in the rise of tolerance is marked by the pub. in 1706-11 of Jacob Christian Basnage's *History and Religion of the Jews since Christ to the Present Day*. The 17th cent. also saw the rise of the famous Benedict Spinoza (1632-77), one of the greatest men that Jewry has produced. But cents. of oppression had done its work, and by the middle of the 18th cent., when external affairs were about to take a turn for the better, the general conditions of the J. had sunk to a low ebb. As a whole, the J. remained a class of social pariahs, petty traders, or artisans despised by all.

But, during the years that have passed since then, a marvellous evolution has been seen. As the J. have become enfranchised, they have produced a host of men of distinction in all walks of life. Numerous are the outstanding men of Jewish origin in science, art, politics, and other fields: Mendelssohn, Disraeli, Hertz, Rufus Isaacs (Marquess of Reading), Ehrlich, Einstein, Gompertz, Mond, Schwarz, Graetz, A. von Wassermann, Henle, Freud, Bialik, Heine, J. Wassermann, E. Ludwig, S. Zweig, Wertel, Kafka, G. D. Ascoli, Schnitzler, Zamenhof, and many others. Especially has progress been seen in the spheres of political activities. In this connection we can only deal with England. In 1723 the words 'On the true faith of a Christian' were removed from the Jewish oaths. In 1753 a Jewish Naturalisation Bill was passed, but such was its unpopularity that it was repealed in the following year. In 1833 began a series of unsuccessful attempts to remove Jewish disabilities, the Bills being invariably thrown out by the House of Lords. A compromise by which Baron de Rothschild, who had been elected for the City of London, was allowed to sit in Parliament, was arrived at in 1858, and in 1860

the parl. oath for both Houses was permanently amended. But Jewry has been fated never to obtain freedom and security for all its people at one time. As a set-off to their recovery in W. Europe, a new foe appeared in 'Anti-Semitism'—new because now, in the 19th cent., the attack was grounded not on creed but on 'race.' The movement began in Germany about 1880, and spread throughout Central Europe, and the Dreyfus case was evidence enough of the hold it obtained in France. It revived, too, the old intolerance in Russia. From 1881 onwards the plight of the J. in Russia was almost as bad as it had been in W. Europe at the time of the Crusades. A series of pogroms was initiated and repeated from time to time till as late as 1910. Between 1880 and 1910 at least 3,000,000 J. fled from E. Europe. Many found refuge on Brit. soil, in England or in the dominions; but the great majority went to the U.S.A. In 1870 the number of Amer. J. was roughly about 250,000; in 1940 it was about 4½ millions.

*Jews in the First World War period and after.* The First World War and the turmoil and confusion that followed caused widespread suffering and loss of life to Jewish people. The sufferings of the J. in Russia were particularly severe, becoming, if possible, more tragic at every new change that swept over that country. The stern official discipline under the Czarist regime bore particularly heavily upon them, restricting their freedom of movement and emphasising the severity of their disabilities. The first revolution, with its consequent disorganisation, deprived many people of legal protection, and particularly those who were unpopular. In some areas individual J. were creditors to whom their neighbours owed money, and the chance of cancelling debts by means of violence was often a direct incentive to crime. As the largest body of individualists in a Communist state, the J. suffered most of all by the change to the Soviet Gov. After the First World War the 2 most important developments in Jewish hist. were the outstanding development of Palestine as a Jewish national home (see ISRAEL and ZIONISM) and the revival of Anti-Semitism in Germany under Hitler. Anti-Semitism, indeed, formed almost the central feature of the 'philosophy' of Hitler's *Mein Kampf* (q.v.) and, under the so-called Aryan Paragraph, J. were first expelled from the civil service; afterwards, Jewish lawyers, doctors of medicine, dentists, teachers, and editors of journals, were deprived of their livelihood; finally, Jewish business men were boycotted, the peasantry purged of 'non-Aryans,' and Jewish trade union officials removed. By the close of 1935 all J. were, in effect, 'denationalised' and deprived of all civic rights. At the beginning of 1932 there were some 600,000 J. in Germany. Thousands fled to other countries and it is one of the tragic ironies of hist. that some 5 or 6 years later, when Nazis had overrun most of Europe, the refugees found

themselves persecuted anew and quite often by those amongst whom they had sought a new home.

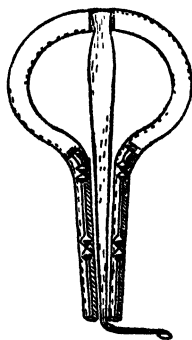
It seems probable that the total number of J. slaughtered by the Germans during the Second World War was not far short of 6 million. According to the Inter-allied Information Committee the number of Jewish victims deported or perished in Axis-controlled Europe between 1939 and 1942 was 2,000,000, while another 5 million were in danger of extermination. In Belgium the actual extermination of the J. was decided upon in May 1942 and, according to Ger. statistics, 25,000 of the 52,000 J. living in that country in 1941 had been deported by the Gestapo. On the day of the Ger. occupation of Czechoslovakia there were 90,000 J. in Bohemia and Moravia and 95,000 in Slovakia; by May-June 1942 more than 72,000 had left Bohemia and Moravia and 65,000 had left Slovakia—all for Polish ghettos where they were cruelly exterminated. The J. in France, Holland, and Norway suffered in the same way. In Yugoslavia Ger. sadism had resulted in the murder of 58,000 of the 86,000 J. in that country since the Ger. invasion (6 April 1941). From the very first moment of the occupation of Poland by the Germans the J. were the object of especial persecution. Murder and robbery were the order of the day. On 1 Nov. 1940, a ghetto was organised in Warsaw and J. were forbidden to leave its walls. In this ghetto and indeed in all the other ghettos, conditions were appalling. In some houses up to 1000 persons lived; individual rooms accommodated an average of 13 persons. Typhus and other diseases took heavy toll of the starved and half-starved. This terrible plan of systematic murder was considered too slow by the Germans, however, for in Mar. 1942 more direct methods of annihilation were instituted. Himmler (q.v.), after a brief stay in Warsaw, issued an order that half the number of Polish J. were to be killed in 1 year. Deportations were, accordingly, begun on 17 Aug. and 10,000 persons were removed daily, while in the meantime a special Extermination Commando had been organised and trained in murder beforehand in Germany. Places of execution were organised at Chelm and Belzec, where those who survived the shootings were murdered *en masse* by means of electrocution and lethal gas. In fact the Germans had transformed Poland into one vast centre for murdering J., not only those of Polish nationality, but those of other European nationalities also. See also AUSCHWITZ (OSWIECIM); BELSEN; BUCHENWALD; CONCENTRATION CAMP; BACHAU. The Anglo-U.S. Palestine Report shows that during the war of 1939-45 the Jewish pop. of Nazi-occupied Europe was reduced by slaughter and starvation by 5,721,600, or more than half the 1939 total. Statistics, however, vary. It is estimated that, before the sack of Jerusalem in AD 70, the J. numbered 4½ million. At the close of the 15th cent. there were only 1½ million. Before the Second

4½ million were in the U.S.A. Of the 10 million in Europe, 9 million were in central and E. Europe—3 million being in Poland. The *Jewish Year Book* gives the 1956 total as 11½ million, of which there were 5 million in the U.S.A., 2 million in the U.S.S.R., 1,600,000 in Israel, and 450,000 in the U.K.

See E. R. Bevan and C. Singer, *The Legacy of Israel*, 1927; L. Magnus, *The Jews in the Christian Era*, etc., 1929; M. M. Kaplan, *Judaism as a Civilisation*, 1934; A. Ruppin, *The Jews in the Modern World*, 1934; J. L. Landau, *Judaism Ancient and Modern*, 1936, and *Judaism in Life and Literature*, 1936; S. W. Baron, *A Social and Religious History of the Jews* (3 vols.), 1937; C. Roth, *The Jewish Contribution to Civilisation*, 1943, and *A Short History of the Jewish People*, 1948; P. Goodman, *History of the Jews*, 1951. See also HEBREW LANGUAGE AND LITERATURE and ZIONIST MOVEMENT.

**Jew's Ear**, or *Auricularia auricula-judae*, fungus shaped somewhat like an ear. It is found chiefly on elders, and was given its name from a legend that Judas hanged himself on an elder-tree.

**Jew's Harp**, small musical instrument, consisting of an elastic vibrating steel tongue riveted at one end to a frame of brass or iron. The narrow free end is at right angles to the vibrating piece. The instrument is held between the teeth, while the metal tongue is twitched by the forefinger. Sound is increased in intensity by the breath, and altered in pitch by the shape of the mouth's cavity.



JEW'S HARP

**Jew's Mallow**, or *Corchorus olitorius*, family Tiliaceae, found in tropical Asia; also *C. capsularis*; both are annuals, growing to 12 ft. and chief sources of jute fibre.

**Jex-Blake**, Sophia Louisa (1840-1912), physician, b. Hastings, Sussex. She was mathematical tutor of Queen's College,

London, from 1858 to 1861, and in 1866 began to study medicine in Boston, U.S.A. She returned to England in 1868, and matriculated in the medical faculty of the univ. of Edinburgh in 1869. In 1874 she founded the London School of Medicine for Women, and in 1877 qualified in medicine at Dublin. In 1878 she opened a dispensary for women and children in Edinburgh, and a cottage hospital in 1885. In 1886 she founded the Edinburgh School of Medicine for Women. She pub. *American Schools and Colleges*, 1867, *Medical Women*, 1872, *Care of Infants*, 1884, and *Puerperal Fever*, 1877. See life by M. Todd, 1918; M. Masefield, *Seven Against Edinburgh*, 1951, E. M. Bell, *Storming the Citadel; the Rise of the Woman Doctor*, 1953.

**Jezireh Road**, see ARYAD.

**Jezreel**, city on a spur of the Mt Gilboa range, 11 m. from Nazareth. It was the cap. of Ahab; here Ahab coveted Naboth's vineyard, and Jezebel had Naboth murdered. The modern vil. Zer'in, built of stone, stands on a bare and rocky knoll, where the remains of anet cisterns and old sarcophagi are still seen.

**Jezreel, Plain of**, see ESDRAELON.

**Jhansi**, city of Uttar Pradesh State, India. It is situated in the former prov. of Bundelkhand (q.v.), is 60 m. distant from Gwalior, and is an important railway centre. In 1857 the Rani of J. took the lead in revolt against the Brit. troops. The seizure of the fort was followed by a massacre of officers who had capitulated. The fort and city were recaptured the following year.

**Jhelum**, tn on the J. R., in W. Pakistan. Timber floated down from Kashmir forests is collected here, and boat-building is carried on.

**Jhelum, The**, anct Hydaspes, one of the 5 rivs. of the W. Punjab in Pakistan. It rises in the hills of Kashmir, and is navigable for about 70 m. in that state. It flows through Walur Lake, thence through the snow-clad Himalaya. Upon its emergence from these mts, via the Baramula Pass, it again becomes navigable. About 250 m. from its source it enters the plain of the Punjab, and after another 200 m. joins the Chenab, also one of the 5 rivs., at Timmu. In the J. valley is situated the lovely and world-famous 'Happy Valley' of Kashmir.

**Jhering**, or **Ihering**, Rudolf von (1818-1892), Ger. jurist, b. Aurich in E. Friesland. He was educ. at the univ. of Heidelberg, and at Göttingen and Berlin. Later he was a prof. at Basel, then at Rostock, in 1849 at Kiel, and in 1851 at Gießen. He set forth a fresh view of the Rom. law, adapting the old as the basis for a new system of jurisprudence. He gained a great reputation, and in 1868 was offered the chair of Rom. Law at Vienna, which he held until 1872, when he went to Göttingen as prof. His chief works are *Geist des römischen Rechts auf den verschiedenen Stufen seiner Entwicklung*, 1852-65, *Der Kampf ums Recht*, 1872, 1925 (Eng. trans. 1884), *Zweck im Recht*, 1877-83, and *Jurisprudenz des täglichen*

*Lebens*, 1870 (Eng. trans. 1904). See study by M. Rümelin, 1922; also K. Wieland, *Andreas Heusler und Rudolf von Jhering*, 1935.

**Jib** (etymology uncertain, only found in English, probably connected with *gibbet*), foremost sail of a ship. It is triangular in shape, and stretches from the outer end of the J.-boom (which is the spar run out from the termination of the bowsprit) to the fore topmasthead. This is in the case of larger vessels; in smaller craft which have no J.-boom the J. extends from the bowsprit to the masthead. A 'flying jib' is a sail set in addition to the J., and lashed to the 'flying jib-boom.' A 'middle jib' is a sail sometimes rigged in addition to the J. and flying J., extending from the end of the J.-boom when the J. is half-way down it. As many as 6 J.s may be carried by large vessels, the outmost being called the 'jib of jibs.'

**Jibraltar**, see GIBRALTAR.

**Jibuti**, **Jibouti**, or **Djibouti**, see DJIBOUTI.

**Jicarillas**, tribe of N. Amer. Indians of Athapascan stock, originally inhabiting parts of New Mexico and Arizona, now on a reservation in New Mexico. They were once very formidable, but are now subdued and rapidly decreasing in number. They make excellent basket work.

**Jidda**, **Jiddah**, see JEDDA.

**Jig** (Fr. *gigue*; It. *giga*) was originally a sprightly It. dance in 6/8, 12/8, or 3/8 time. It was often used artistically by old masters and introduced into their suites. Bach and Handel used it to finish a suite, and then simple time is sometimes found, but with the characteristic rhythm represented by triplets.

**Jigger**, see CHIGOE.

**Jigoro Kano**, see JU-JITSU.

**Jihad**, Muslim name for a general religious war against Christians, infidels, or other unbelievers.

**Jihlava**: 1. Region (*kras*) in Central Czechoslovakia, bordering on Austria, mainly part of the former prov. of Moravia (q.v.) but including also part of Bohemia (q.v.). Area 2,455 sq. m.; pop. 423,000.

2. (Ger. *Iglau*) Czechoslovak tn, cap. of the region of J. In the Middle Ages it was a mining centre, silver having been worked since the 8th cent. There are textile and engineering industries, and a trade in market produce. Pop. 23,500.

**Jijona**, Sp. tn in the prov. of Alicante. It manufactures shoes, and has a trade in fruit and honey. Pop. 8,000.

**Jilolo**, see HALMAHERA.

**Jimenez de Cisneros**, see XIMENES.

**Jiménez**, Juan Ramón (1881-1956), Sp. poet, b. Moguer. Of delicate health, J. was essentially an aesthete. A marked evolution can be seen in his poetic style. His early poems (1903-5) such as *Arias tristes* and *Jardines lejanos* are simple, short-lined lyrics, influenced by Verlaine. Then his verse becomes firmer, more ornate, as in *La Soledad sonora*, 1911, where he uses alexandrines. Finally, in 1916, he abandoned fixed metres and adopted the *verso libre* ('poesía desnuda'): *Diario de un poeta recién casado*, 1916,

*Eternidades*, 1918, and *La Estación*, 1923-1936. His influence on contemporary poetry was immense. Fifty of his poems have been trans. into English by J. B. Trend, 1950. He received the Nobel prize for literature in 1956. See E. Diez Canedo, *J. R. Jiménez y su obra*, 1944.

Jimines de Cisneros, Francisco, see XIMENES.

Jinas (literally the 'victorious' one as contrasted with the merely 'awakened' one, Buddha), in the Indian religion of Jainism (q.v.), the deified saints who give the sect its name. A Jina is an omniscient sage who re-establishes the law in its integrity when it has become corrupt. Jainists hold that 24 J. have appeared at long intervals of time. Mahavira, founder of the Jainist sect, was the twenty-fourth Jina.

Jingo and Jingoism. The derivation of J. is uncertain, but the modern application was borrowed from the lines of a music hall song by W. Hunt, very popular in 1878, the chorus of which ran:

'We don't want to fight, but by Jingo! if we do,  
We've got the ships, we've got the men,  
and got the money too.'

The term J. was at that time used as a nickname for those who supported Beaconsfield's anti-Russian policy of sending ships to the E. to assist the Turks against the Russians. From this the term has come to mean any person who advocates a bellicose or chauvinist policy, and Jingoism, therefore, denotes the policy of the Jingoists.

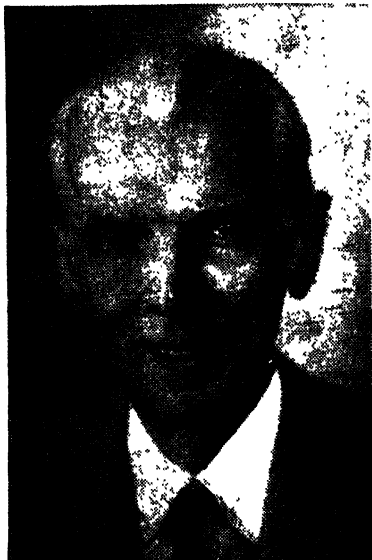
Jinn, see GENIUS.

Jinn, or Djinn, name of a class of spirits in Arabian mythology. The greatest of them was Eblis, who was formed out of smokeless fire. In the Arabian Nights they are spoken of as long anterior to Solomon. There are both good and bad J., and among the latter the 5 sons of Eblis may be mentioned besides the Ghoul, which appears in human form, the Sealah, found in forests, the Delhan, living on is., and the Shikk, shaped like a human being halved lengthwise. Eblis is often made the equivalent of Satan. The J. are reputed to assume various shapes, and live chiefly in the mts of K&T, but their evil influence can be averted by talismans, etc.

Jinnah, Mahomed Ali (1876-1948), first Governor-General of Pakistan on partition of India, 1947. Known as Qaid-i-Azam (Great Leader). B. of a wealthy merchant family in Karachi, J. was educ. in Karachi and Bombay, then studied law at Lincoln's Inn in London and was called to the Bar in 1896. Returning to India he found his family fortunes dissipated and started to practise in Bombay. After a few difficult years he became very successful at the Bombay Bar.

Always attracted to politics, he joined the Indian Congress, becoming private secretary to Dadabhai Naoroji, one of the founders of Congress. Elected to the Central Legislature, of which he remained a member for nearly 40 years, he stood at

first for Hindu-Muslim unity in an independent India, helped to organise the boycott of the Simon Commission, 1928, and attended the Round Table Conferences in London, 1931-3. Although he spoke at this time of a dominion of all India, doubts had already entered his mind on the outlook for Muslims. He returned to India in 1934 and was elected president of the Muslim League, a position he occupied until his death. The sweeping Congress election victories in 1936-7 confirmed him in his view that Hindus would dominate Muslims to the



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MAHOMED ALI JINNAH

point of exclusion and subordination. In 1940 at Lahore J. declared publicly that Hindus and Muslims represented distinct civilisations and that the only course open to both was to allow the major nations (of India) to separate to their homelands. From this position he never withdrew. On partition in 1947 J. became Governor-General of the new dominion, Pakistan, and president of the Constituent Assembly.

J. was a striking figure, tall, lean, and handsome. Of exceptional legal ability, he was a most persuasive advocate. As a politician he was shrewd and astute but also incorruptible and inflexible. He had no administrative experience and would not have claimed to be an administrator. But as the leader of the 70,000,000 Muslims previously in India he had no rival, and can truly be described as the founder of Pakistan.

**Jinotega**, tn in W. Nicaragua, 13 m. NW. of Matagalpa, is the cap. of J. dept. Large quantities of coffee are grown in the dist.; hat-making and flour-milling are other occupations. Pop. 4550.

**Jinotepe**, tn in S. Nicaragua, cap. of the dept. of Carazo, is 22 m. SSE. of Managua. It is the centre of a sugar and coffee producing dist. Pop. 7000.

**Jipijapa**, city of Manabí prov., Ecuador, in the W. lowlands of that country, connected by road with Portoviejo and Guayaquil (80 m. to the SE.). J. is famous for the export of straw ('Panama') hats. Pop. 7600.

**Jirjeh**, see GIRJEH.

**Jitomir**, see ZHITOMIR.

**Jiu-Jitsu**, see JU-JITSU.

**Jivaro**, Amer.-Indian tribe of Ecuador and Peru. They are warlike and numerous, and are famed for their practice of shrinking the heads of captured enemies, the heads being kept as trophies. They were reduced by the Spaniards after the conquest of Peru, but won back their liberty in 1599 by a general insurrection. See B. Flornoy, *Jivaro, Among the Head-shrinkers of the Amazon*, 1953.

**Jmudes**, see SAMOGITIA.

**Joab** ('Yahweh is a father'), son of Zeruah; David's nephew and general, first mentioned in 2 Sam. ii. 12 ff. in the campaign against Abner and Ishbaal. He was promoted general after the capture of Zion, and later captain over all the host of Israel' (2 Sam. xx. 23). He was a headstrong character whom David failed to control (2 Sam. iii. 39; xviii. 14 f.). He was prominent in the rebellion of Absalom and that of Sheba. He later took part in Adonijah's attempt to gain the crown, and was executed by Solomon.

**Joachim, George**, see RHETICUS.

**Joachim, Harold Henry** (1868-1938), philosopher; educ. at Harrow and Balliol College, Oxford. His father was a brother of the violinist Joseph J., and his mother a daughter of the organist and composer Henry Smart. After teaching moral philosophy at St Andrews, J. went to Oxford, where he became Wykeham prof. of logic with a fellowship of New College from 1919 to 1935, and was a leading representative of the Hegelian tradition. He pub. few works, but all are of outstanding quality: *Study of the Ethics of Spinoza*, 1901, and *Nature of Truth*, 1906 (expounds the doctrine of truth as 'coherence'); trans. of Aristotle's *De Lineis Insecabilibus*, 1908, and *de Generatione et Corruptione*, 1922, both showing a profound knowledge of aet. philosophy. His unpub. lectures on Aristotle have the same authoritative character.

**Joachim, Joseph** (1831-1907), Austro-Hungarian violinist, conductor, and composer, b. Kittsee near Prossburg. As a boy prodigy he visited Vienna (1841) and Leipzig (1843), where his talent won Mendelssohn's recognition, and London (1844). At the age of 18 he became leader in the Grand Duke's band at Weimar; 4 years later he was appointed to the court of Hanover, and for the next 13 years continued as director of the royal con-

certs. From 1862 until his death he appeared regularly every year in London, chiefly at the St James's Hall and the Crystal Palace, where he became known pre-eminently as the untiring apostle of Brahms. In 1868 he began his official career as a teacher at the Berlin Royal Academy of Arts, and in the following year founded the J. quartet, which for many years represented chamber music at its finest. See life by A. Moser, 1898, 1908-10 (Eng. trans. by L. Durham, 1901).

**Joachimsthal**, see JACHYMOV.

**Joad**, Cyril Edwin Mitchinson (1891-1953), author, specialising in works of popularised philosophy. Educ. at Blundell's School and Balliol College, Oxford; John Locke, scholar in moral philosophy, 1914. Entered civil service in Board of Trade, 1914, later going to Ministry of Labour; retired 1930. Chairman of the National Peace Council, 1938. Appointed head of Dept of Philosophy and Psychology, Birkbeck College, univ. of London, 1930. Acquired a popular reputation by his answers as a member of the 'Brains Trust,' a feature of B.B.C. programmes. His numerous pubs. include *Essays in Common Sense Philosophy*, 1919, *Philosophical Aspects of Modern Science*, 1932, *The Book of Joad*, 1935, *Great Philosophies*, 1937, *The Testament of Joad* 1937, *A Year More or Less*, 1948, and *Decadence: A Philosophical Enquiry*, 1948.

**Joan**, wife of the Black Prince, see FAIR MAID OF KENT.

**Joan I.** of Naples (1327-82), daughter of Charles, Duke of Calabria, became queen in succession to her grandfather, King Robert, in 1343. She had no sons and so made Louis I, Duke of Anjou, her heir, with the result that Charles, Duke of Durazzo, who regarded himself as the rightful future King of Naples, seized the city. J. was captured and executed at Aversa.

**Joan II.** of Naples (1370-1435), daughter of Charles of Durazzo, King of Naples. She succeeded her brother Ladislas in 1414, and was at that time the widow of Wm. of Austria. She next married Jacques de Bourbon, Count of La Marche, but at the same time chose Count Pandolfello as her lover. He was arrested and executed by her husband, she herself being condemned to religious seclusion. On regaining her liberty she in her turn had Jacques imprisoned. Her whole reign was disturbed by civil wars, and on her death the throne passed to Alfonso of Aragon.

**Joan, Pope**, mythical personage, long believed to have filled the papal chair as John VIII, about 855. She was said to have been the daughter of an Eng. missionary, and educ. at Cologne. She fell in love with a monk with whom she went to Athens in male attire, but returned to Rome on his death. Here she opened a school, and entered the priesthood, eventually being elected pope, but d. during a papal procession. This tale was first overthrown by Blondel in 1647, who pub.

an *Éclaircissement de la question*, but was finally and completely refuted by Döllinger in his *Papstfabeln des Mittelalters*, 1863 (Eng. trans., 1872).

**Joan of Arc, St. (Fr. Jeanne d'Arc)**, (1412-31), the Maid of Orleans or 'La Pucelle,' Fr. saint and national leader, was b. in the vil. of Domrémy near Vaucouleurs, on the borders of Champagne. Her parents were peasants. Her extraordinary character and conduct make her one of the most striking and controversial figures in hist. From the age of 13, according to her own account, she began to hear the voices of Sts Micherl, Margaret, and Catherine commanding her to deliver her country from the Eng. invader and to conduct Charles VII., King of France, to Rheims, to be crowned. She persuaded the local governor to let her go to the king, at Chinon, to tell him her message: there her fervour and sincerity conquered the scepticism and defeatism of the court. She was given permission to go to the deliverance of Orleans, at that time under Eng. siege. She donned male dress and a suit of white armour, and, mounted on a black charger, put herself at the head of an army of 6000 men, and advanced to aid Dunois in the siege of Orleans. She entered the city in April 1429, and forced the English to raise the siege and retreat after 14 days' fighting, and Charles entered Rheims and was crowned in July of the same year. After this she drove the English from thence. They and the Burgundians swore that she must be a witch: her own followers clearly regarded her as a saint. But at court many were jealous of her influence over the king and waited for the chance to get rid of her. When she failed to take Paris her prestige suffered a considerable blow; soon after (May 1430) she was captured by the Burgundians and sold to the English. She was imprisoned at Rouen, condemned as a heretic, and finally burned at the stake. There is no doubt that the English wanted her death for political reasons; but those who tried her were largely Frenchmen, and it is now considered quite probable that her life might have been spared had she presented her case more carefully. It was when she insisted on putting on male dress again—possibly as a protection against her jailers—that her fate seems to have been finally sealed. In 1455 a special commission appointed by the Pope rehabilitated her. She was canonised in 1920. There are interesting dramatic interpretations of J. by G. Bernard Shaw and J. Anouilh (trans. into English by Christopher Fry). See also A. Lang, *The Maid of France*, 1908; H. Belloc, *Joan of Arc*, 1929; W. Barrett, *Trial of Jeanne d'Arc*, 1931; V. Sackville-West, *Joan of Arc*, 1936; F. Winwar, *The Saint and the Devil*, 1948; A. Buchan, *Joan of Arc and the Recovery of France*, 1948; Regine Pernoud (trans.), *The Retrial of Joan of Arc*, 1955.

**Joanes, or Juanes, Vicente** (1523-79), Sp. painter, who was sometimes referred to as 'the Spanish Raphael,' b. Fuente de la Higuera in the prov. of Valencia. He

studied chiefly at Rome, but his best works are at Valencia. All his subjects are religious, and are marked by a beauty of colour and minuteness of finish.

**Joannes Damascenus, St. or Chrysorrohoas** (c. 676-749?), theologian, hymn-writer, and one of the later Gk fathers, b. at Damascus. He defended the veneration of images in a controversy with Leo the Isaurian. He spent his later years in the monastery of St Sabas, near Jerusalem. His works include an *Encyclopaedia of Christian Theology*; treatises against Jacobite and Monophysite heretics; disputations against superstitions; homilies; *Barlaam and Josaphat*, a disguised version of the life of Buddha; *Fons Scientiae*; and *De imaginibus*. But he is best remembered by his hymns, many of which have been trans. into English. He was declared a Doctor of the Church in 1890. His feast is on 27 March. The first good ed. of his works was that of Le Quien, 1712; this was reprinted in 1748. See H. Menger, *Die Bilderlehre des Johannes von Damaskus*, 1938.

**Joash, or Jehoash**: 1. Son of Ahaziah and King of Judah (836-797 BC), came to the throne at the age of 7. J. at first ruled well, and restored the Temple, but later relapsed into the Baal worship of his grandmother Athaliah (2 Chron. xxiv, 15 ff.). He was ultimately assassinated. See also ATHALIAH; JEHOIADA.

2. (**Jehonah**) Son of Jehoahaz, King of Israel (c. 798-783 BC), third in the dynasty of Jehu. By 3 great victories over Benhadad, foretold by Elisha, he regained the lands conquered by Hazael, and then reduced Judah to dependence on Israel.

**Job, Book of** (Heb. *ʾIyyōb*), one of the most remarkable books of the O.T., belonging to the Hagiographa. The book in its present form divides naturally into 5 parts: (1) The introduction (chs. i. and ii.) first shows us Job as a prosperous Edomite Emir, whose prosperity is equalled by his godliness and uprightness. At a council in Heaven we hear God express his approval of Job and the Adversary is allowed to torment him so that his perfect righteousness may be proved. In spite of his wife, Job maintains his integrity, but on the arrival of 3 friends to condole with him, he breaks into a passionate lamentation. (2) The discussion between Job and his 3 friends, Eliphaz, Bildad, and Zophar (chs. iii.-xxiii.). This contains 3 cycles of dialogue, each cycle consisting of 3 speeches by Job in answer to speeches by each of the 3 friends in turn. In the last cycle Zophar's silence seems to show that Job has ended the discussion, but some hold that the third cycle is really complete, verses 11-23 of ch. xxvii being in truth Zophar, and not Job. (See Froude's essay on Job and the authorities there quoted.) The view of Job's friends is that suffering is inevitably and invariably the result of sin, and that Job's case cannot be an exception. Job, in the consciousness of his innocence, is almost driven to deny the justice of God. He is, however, saved, and ends by concluding that sin and suffering in the individual

are not necessarily connected, and by adjuring God to reveal the reason why he is thus afflicted. (3) Introduces the speeches (chs. xxxiv.-xxxvii.) of a young man named Elihu. He expresses his utter abhorrence of Job's utterance against God, and lays stress on the disciplinary value of suffering, a point already slightly noticed by the 3 friends. (4) God's reply out of the tempest (chs. xxxviii.-xli.), a series of poetic pictures of the mysteries of the universe, so presented as to humble Job, and draw from him a confession of his utter ignorance and worthlessness before his Creator. (5) The conclusion (ch. xlii.) tells how, thus humbled, Job is restored to double the prosperity he had enjoyed before. The problem with which the B. of J. deals is the mystery of suffering, which must have engrossed the attention of the Jews in the early post-exilic period to which this work is usually referred. The text is, unfortunately, in a very corrupt condition, but there is a fairly regular sequence of thought. The Elihu passages appear to be a later interpolation. There is no reason to believe that the story is historical; it is probably founded upon a legend. It doubtless owes much, however, to the poetic genius of its compiler. A vast amount of literature and art (e.g. Blake's *Vision of the Book of Job*) has grown up around it. See A. B. Davidson, *Job*, 1884, and works by T. Cheyne, 1897, H. Duhm, 1897, C. Buddé, 1903, and A. Nairne, 1935. See also J. Wicksteed's ed. of Blake's *Vision of the Book of Job*, 1910; H. W. Robinson, *The Cross of Job*, 1938; E. J. Kissane, *The Book of Job*, 1939; W. B. Stevenson, *The Book of Job*, 1947.

**Jobber**, professional dealer on the Stock Exchange whose business it is to 'make a market' for a special line of securities. He is precluded by the rules of the Stock Exchange from acting as a broker, but can make bargains direct with members of the public provided he does not do so in the House. He can buy securities with the intention of taking delivery, and can sell with the intention of delivering whether he has the shares or intends to obtain them subsequently. Generally speaking a J.'s business is to sell or buy immediately what he has bought or sold respectively. J.s quote securities at 2 prices, the higher at which they will sell, the lower at which they will buy. The difference is called the 'turn of the market.' When there is a free market, i.e. where the securities are being freely bought and sold, the J. must content himself with a smaller 'turn,' but he will have ample opportunities of getting his profits by converse bargains. Members may not act as brokers and J.s at the same time, and on their ann. application for re-election must state in which capacity they intend to act.

**Job's Tears**, popular name of the ann. graminaceous plant known botanically as *Coix lacryma-jobi*. The fruit resembles tears, and the grass occurs in India.

**Jocasta**, wife of Laius of Thebes, and mother of Oedipus (q.v.). She married the latter, not knowing he was her son, and on realising her crime, killed herself.

**Jocelin**, or **Jocelin** (fl. 1200), Cistercian monk, was the author of *The Life and Miracles of Saint Walken of Melrose*, *A Life of David, King of Scotland*, *A Life of Saint Kentigern*, and *A Latin Narrative of the Life and Miracles of St Patrick*. The last work was first printed in 1624, and an Eng. version by E. L. Swift was pub. at Dublin in 1809.

**Jocelin de Brakelonde** (d. c. 1213), Eng. chronicler, probably b. Bury St Edmunds. He became a monk at the Benedictine abbey there in 1173. He wrote a chronicle of the abbey from 1173 to 1202, in which he gives a minute account of the abbot Samson and of his reforms, as well as of the monastic life of the time. J.'s style is clear and pleasing, and it was his picture of Samson which inspired Carlyle to write his essay on the abbot in *Past and Present*.

**Jochumsson, Matthias** (1835-1920), Icelandic divine, poet, and dramatist, one of the greatest names in the literary hist. of Iceland. Among his masterly trans. are *Hamlet*, *Macbeth*, *Othello*, *Romeo and Juliet*, and Byron's *Manfred*. J.'s autobiography was pub. posthumously.

**Jockey Club**, see HORSE-RACING.

**Jockey Club Stakes**, see HORSE-RACING.

**Joculators**, see JONGLERS.

**Jode, Pieter de** (1570-1634), the Elder, Flem. engraver, b. Antwerp. He studied under Hendrik Goltzius and afterwards went to Italy. In 1601 he returned to Antwerp and engraved many plates after the prin. Flem. painters. Van Dyck painted a portrait of J. and his son (q.v.) together.

**Jode, Pieter de** (1606-74), the Younger, son of the above, was taught by his father, and was one of the many engravers employed in reproducing the paintings of Rubens and Van Dyck (q.v.).

**Jodel**, or **Jodelin**, see YODEL.

**Jodelle, Etienne** (1532-73), Fr. poet and playwright, b. in Paris. He was one of the members of the Pléiade. He aimed at substituting classical drama for the morality and mystery plays that then occupied the Fr. stage. He produced his first play, *Cléopâtre captive*, in 1552. This was represented before the court, J. himself playing the title-role, and is famous for being the starting-point of Fr. classical tragedy. He also wrote 2 other plays: *Eugène*, a comedy, and *Didon*, a tragedy which follows Virgil's narrative. His collected poems, *Œuvres et mélanges poétiques*, were pub. in 1574. See H. Chamard, *Histoire de la Pléiade* (4 vols.), 1939-40.

**Jodhpur**, former Indian state, now part of Rajasthan state, India. J. is the chief city of the Marwar area. The fort stands on a rock some 400 ft above the surrounding plain and contains the Old Palaces, buildings of great beauty and interest. There is an important civil aerodrome. See INDIAN PRINCELY STATES.

**Jodrell Bank**, experimental station, Lower Wiltshire, Cheshire, England, at which is located the world's largest radio telescope, under the direction of Prof. C. B. Lovell. See RADIO ASTRONOMY.

**Joe Bassett**, Eng. country name for the grubs of the Cockchafer beetle.

**Joel**, second in biblical order of the 12 minor prophets, son of Pethuel (i. 1) or, as many important MSS. read, of Bethuel. His prophecies contain no clear references to contemporaneous events, nor to sins sufficiently specific to give any clue to his date. He is generally held to have prophesied in the reign of Joash, King of Judah, though some think him post-exilic. The book contains 3 prophecies, all closely connected. Chs. i and ii tell of a great plague of locusts, a figurative allusion to the armies of Assyria. Then comes the prophecy of the outpouring of the Holy Ghost (ii. 28), followed by the great judgment on the enemies of Judaea in the valley of Jehoshaphat. See commentaries by S. C. Driver, 1915; J. Schmalohr, 1922; also E. O. Merx, *Die Prophetie des Joels*, 1879; L. Dennefeld, *Les Problèmes du Livre de Joel*, 1926.

**Jœuf**, Fr. tn in the dept of Meurthe-et-Moselle. It has a steel industry. Pop. 9700.

**Joffre, Joseph Jacques Césaire** (1852-1931), Fr. soldier, to whom is generally given the credit for making the decision to stand against the Germans at the battle

the name of J. was scarcely known to the Fr. people before the First World War, and his rise in the military profession had been a matter of purely administrative success. Yet in character and common sense J. was a great soldier. His conception of the plan to turn the Ger. right flank, and to so do at the moment chosen, saved Paris; and with the salvation of Paris the morale of the Fr. people remained unimpaired at the one moment in the war when its impairment might have been irreparable. J.'s was a steady influence in the early days of the war. He was one of the few soldiers to foresee the course of the war; others, like the Ger. leaders, looked forward to a short decisive encounter. Writers dispute the precise part played by the different Fr. commanders in the strategy adopted on the eve of the Marne battle. Some give the entire credit to J., asserting that Gallieni (q.v.) strongly advised an attack on von Kluck's exposed flank by Maunoury's army alone; others—the majority—give the major share in conception to Gallieni, and attribute the rest to the legendary reputation of J. But there seems to be no doubt that the planning of the battle was the work of J. After the Marne battle, however, when the Ger. resistance stiffened, rival generals conducted a campaign against J., and the champions of Gallieni and of Sarrail (q.v.) charged J. with rejecting all superior authority and organising a military junta at Chantilly. Indeed J. never seems to have inspired the supreme confidence of Gallieni, for when Gallieni in 1915 became minister of war, he cast some implied aspersion on J.'s conduct of the war by demanding information on the Verdun defences. J. tendered his resignation (Oct. 1915), but the Fr. Gov. retained its confidence in him. The vendetta against him, however, continued. Finally, on 13 Dec. 1916, a decree conferred on J. the title of technical adviser to the gov. in matters appertaining to the direction of the war, with retention of the title 'Commander-in-Chief'; but the command of the Fr. front was to be given to Gen. Nivelle. The Fr. Senate were opposed to this arrangement, and after Briand had appointed Gen. Lyautey war minister, J.'s 2 offices were suppressed, and on 26 Dec. he was created Marshal of France, the first to receive the revived honour, which had been abolished after the fall of the Second Empire. In 1918 he was made a member of the Académie Française. A statue of J. stands outside an hotel in Chantilly, where he had made his staff H.Q. early in the war. See F. W. Halsey, *Balfour, Viviani, and Joffre*, 1917; Le Goffic, *Les Trois Maréchaux: Joffre, Foch, Pétain*, 1920; R. Recouly, *Joffre*, 1931. See also his memoirs (Eng. trans. 1932).

**Joggs**, see **JOUGS**.

**Jogjakarta**, or **Jokjakarta**, tn of S. Java, Indonesia, at the foot of Mt Merapi, 35 m. S. of Surakarta on the railway from Jakarta to Surabaya. It is the cultural and trade centre for an agric. area (rice,



MARSHAL JOFFRE

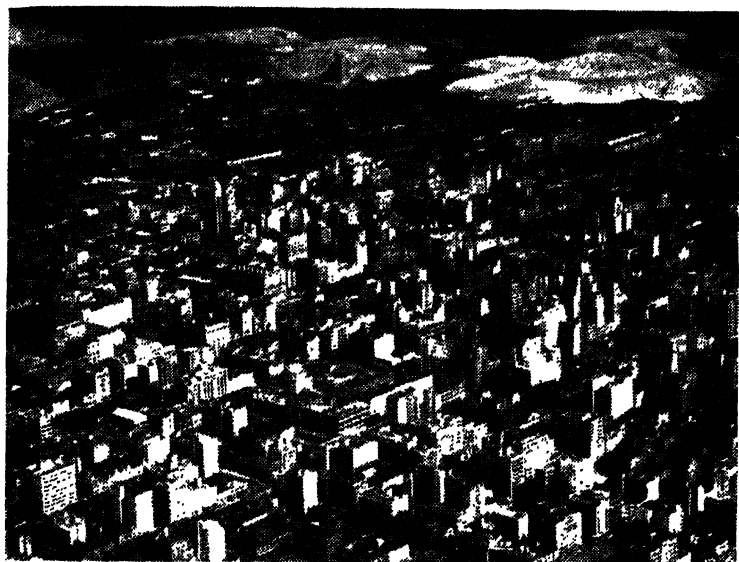
of the Marne in Sept. 1914. He was b. Rivesaltes, 4 Jan., third son of a family of 11 children, the father being a master cooper. Educ. at the Collège de Perpignan and the École Polytechnique, he joined the army as a second-lieutenant during the Franco-Prussian War of 1871. He saw service in various colonial expeditions, among which were the Chinese expedition of 1884; while in 1894 he was sent to the rescue of the Bonnier column, which was subsequently massacred by the Tuaregs, and succeeded, after a struggle, in occupying Timbuktu (see his *March to Timbuktu* 1915). His comparatively slight experience of actual warfare was not supplemented by any very adequate training in the theory of war, and when he reached the Higher Command he had to apply himself to the study of an art which Foch, Pétain, and others had been teaching for many years. Indeed



rubber, copra, sugar). J. is famous for metalwork, jewellery, and batik. There are celebrated temple ruins and monuments near by. Cap. of the original Rep. of Indonesia, 1948.

Johanna, or Anjouan, one of the Comoro Is. (q.v.), at the N. end of the Mozambique Channel, Indian Ocean. It is the central is. of the group, and is 20 m. long and 18 m. wide. Mutsamudu is the port and prin. tn. Coffee is grown and agriculture is one of the chief occupations. J. was made a Fr. protectorate in 1886 along

temp. often occurs when there is a summer thunderstorm. J. was founded in 1886 on the farm Randjeslaagte on the ridge known as the Witwatersrand (q.v.) when the main reef of gold-bearing conglomerates was discovered by George Harrison. The small mining camp was probably named after Johannes Meyer, the Mining Commissioner of that time. Its early hist. was one of rapid development and of political and civil strife. The political disabilities of the new pop., known as Uitlanders (foreigners), which had



*South African Railways*

JOHANNESBURG: AN AIR VIEW OF THE CENTRAL AREA

with the other is. of the group. Pop. 65,000.

Johannes Sootus, see ERIGENA.

Johannesburg, city in the Transvaal Prov. of the Union of S. Africa, situated on the high veld, 5740 ft above sea level, is 429 m. by road from Durban and 941 m. from Cape Town. J. is the centre of the great gold-mining industry of the Witwatersrand and the most important business, commercial, and financial centre in S. Africa. It has one of the finest climates in the world, with summer rains on an average of 96 days a year and cold dry days with brilliant sunshine throughout the winter months. The average ann. rainfall is 29.47 in., the average mean maximum temp. is 77.7° in Jan. and 60.1° in July, and the average mean minimum 40.2° in July and 56.5° in Jan. Extremes of heat and cold are rarely experienced, although a sudden drop in

flocked to the rich gold-fields led in 1895 to the Jameson Raid and to the Anglo-Boer War of 1899-1902. On the outbreak of war in Oct. 1899 most of the Uitlanders left the tn and business and mining came to a standstill. In May 1900 Brit. troops under Lord Roberts entered J., and by the end of the war the tn and mines were functioning normally. From bare veld in 1885 a tn of 10,331 European inhab. had sprung up by 1890 and the European pop. increased to 83,363 in 1904, to 150,286 in 1921, to 252,579 in 1936, and 336,292 in 1948. The total pop. in 1954 was 818,700, made up of 354,300 Whites, 409,200 Bantu, 33,000 Coloured, and 22,200 Asiatics. The area of J. is 57,007 ac. or 89.07 sq. m.

Local gov. in 1886 was exercised by a mining commissioner assisted by a Diggers' Committee elected by the gold-seekers. In 1887 a Sanitary Board was

estab.. and in 1896 Johannesburg became a tn governed by a Stadsraad (Tn Council). In 1900 the duties of the Stadsraad passed to the military governor, and in 1901 a nominated council became responsible for local affairs; this was replaced by an elected council of 30 in Dec. 1903, and since that time local gov. has been modelled on the Eng. system. A Transvaal Prov. Ordinance of 1928 transformed the tn of J. into a city. To-day (1958) local gov. is in the hands of a City Council of 42 members. The City Council owns and operates 2 power stations, a gas works, an abattoir and livestock market, a produce market, fine sewage disposal works, and a transport system of trams, motor buses, and trolley buses. There is a plentiful water supply obtained from the Rand Water Board and distributed by the City Engineer's Dept. The City Council has 245 parks and open spaces, with a total area of 6314 ac. There are 12 municipal open-air swimming-baths, a fine zoological garden, and a municipal golf course. The council owns the Ellis Park rugby and cricket grounds where international games are played. Public health and social welfare work is highly developed. In 1948 the council owned 2112 sub-economic houses for Europeans and Eurafrikaners and in its sub-economic townships and hostels housed a pop. of 111,860 native Africans. Slum areas are being rapidly cleared. The rateable value of the city in 1954 was £410,306,360.

The J. Public Library is a municipal institution, with a fine central library, including special collections on science and technology, fine arts and Africana, a municipal reference library, an Africana Museum, and a municipal theatre. The city also maintains branch libraries for Europeans and non-Europeans, mobile libraries, school libraries, hospital and prison libraries. The Municipal Art Gallery, designed by Sir Edwin Lutyens, contains a fine collection of 19th cent. and modern art, the original stock having been selected by Sir Hugh Lane. The city orchestra is subsidised by the council annually from city funds. There were 221 churches and church halls in J. in 1946. St Mary's Cathedral, designed by Sir Herbert Baker and Mr F. L. H. Fleming, is a fine building not yet completed. The Dutch Reformed church is a modern building and the Catholic pro-cathedral is to be rebuilt. J. is an important educational centre. The univ. of the Witwatersrand has faculties of arts, science, medicine, engineering, commerce, law, dentistry, and architecture. It includes the Bernard Price Institute of Geophysical Research, a speech and hearing clinic, and a good library. The Witwatersrand Technical College provides vocational and other classes for young people and adults, and controls an art school, a trades school, and a business college. The J. Teachers' Training College is a prov. institution. The majority of primary and high schools are run by the Transvaal Prov., although there are sev. important

private schools, notably St John's College and Marist Brothers' College for boys, and Roedeand, Kingsmead, and sev. convent schools for girls.

See A. Macmillan, *The Golden City of Johannesburg* (2nd ed.), 1933; J. Gray, *Payable Gold*, 1937; J. Maud, *City Government, the Johannesburg Experiment*, 1938; Ethel L. and J. Gray *A History of the Discovery of the Witwatersrand Gold-fields*, 1940; H. A. Ohlivers, *Out of the Crucible* (2nd ed.), 1948.

Johanngeorgenstadt, Ger. tn in the dist. of Karl-Marx-Stadt, in the Erzgebirge (q.v.), on the Czechoslovak frontier, 28 m. SSW. of Karl-Marx-Stadt (q.v.). It is a sports resort and is in a uranium-mining dist. Pop. 7000.

Johannisberg, Ger. vil. in the Land of Hessen (q.v.), 14 m. WSW. of Wiesbaden (q.v.). Its wines, particularly those from the vineyards of the castle, are among the finest of the Rheingau (q.v.).

John, St, the apostle, son of Zebedee and brother of James the Great. The call of James and J., who with St Peter form the inner circle of the apostolic band, is described in all 3 synoptic gospels. J. is also generally identified (1) with the companion of St Andrew mentioned in the Fourth Gospel who, from being a disciple of J. the Baptist, became a follower of Jesus; (2) with the 'other disciple,' spoken of also as 'the disciple whom Jesus loved,' mentioned in the Fourth Gospel. Three incidents in the Gospels throw special light on his character as Boanerges (q.v.): the request of the brothers (Mark x. 35-41), the rebuke given to the man casting out devils in the name of Jesus (Mark ix. 38), and the request that fire should be called down from heaven to destroy the Samaritan vil. (Luke ix. 54). St J. appears in the early chapters of Acts, as the companion of St Peter, while he is spoken of in Gal. ii. 9 as one of the pillars of the Church at Jerusalem. To him Christ entrusted his mother on Calvary. He had connections with the family of the High Priest, and access to the latter's house. J. ended his days as Bishop of Ephesus where Polycarp, teacher of Irenaeus, knew him; and it was there he wrote his gospel and epistles. He was a young man when called by Christ, and d. at a great age about the last decade of the 1st cent. A tradition from the time of Irenaeus (c. AD 175) asserts that he had survived imprisonment on the island of Patmos (where he wrote Apocalypse) and torture under Domitian.

John, Epistles of, 3 canonical epistles ascribed to the apostle J. The authenticity of the first Epistle is generally admitted, in the sense that it is certainly by the author of the fourth Gospel (q.v.). It is further probable that the Epistle was written after the Gospel. The aim of the Epistle is primarily to build up the writer's 'children' in the true Christian life, but to do this he has to be polemical to some extent. There has been much discussion as to what enemies his words are directed against, but they may be classed generally as Gnostics, whose errors

of life and conduct were as serious dangers to the flock as were their heretical doctrines. It is an ancient tradition that the Epistle was directed partially against Cerinthus. The language of all the Epistles shows clearly that they are not really 'general,' but are addressed to a particular church or group of churches whose members were well known to the writer. This is particularly so in the case of the first Epistle. The question of the authorship of the two later Epistles is more difficult. Their authenticity was much disputed before the formation of the canon. Jerome suggested that J. the Presbyter, as the author calls himself, was a different person from St J. the Apostle. Style and language, however, as well as particular phraseology and ideas, link them closely with the first Epistle. It is now generally agreed that the 'lady' to whom the second Epistle is addressed stands for the particular church addressed herself. See commentaries by B. Westcott, 1883; J. Carpenter, 1927; G. H. MacGregor, 1928; E. C. Hoskyns (in Gore's *New Commentary*), 1928.

**John, Gospel according to St.** The fourth Gospel stands in striking contrast to the 3 synoptic gospels which precede it. It has often been remarked how St J.'s Gospel begins with the same words as the Book of Genesis: 'In the beginning,' and opens with an elaborate philosophic and metaphysical statement as to the eternal life of the Incarnate Word. Everywhere the abstract takes precedence of the concrete. The tone of the fourth Gospel is often rather that of a dogmatic than of a biographical work. It is taken for granted that the hearers are acquainted with the characters introduced, e.g. J. the Baptist. Many vital points in the actual hist. of Jesus are omitted, e.g. His baptism and the institution of the Eucharist, though J. gives our Lord's promise of the Eucharist at great length in ch. vi. The earthly life of Christ is considered by J. in its connection with His life as God and with the whole of human experience. The incidents narrated are chosen partly to supplement a correct synoptic narrative, but mainly for their doctrinal value; and Christ's words are not given simply as spoken, but as matured and interpreted in the mind of the writer. The authorship of St J.'s Gospel has also been a most important critical problem during the last cent. There is now a tendency to return to the traditional view and ascribe it to St J. the Apostle, or possibly to J. the Presbyter spoken of by Papias. The extreme anti-traditional view of the Tübingen school made the author a Gentile Christian, and placed the work in the middle of the 2nd cent.: Baur suggested AD 160-170, Pfleiderer AD 140, Keim AD 130. Harnack, however, in his *Chronology of Early Christian Literature* placed it between AD 80 and AD 110. This chronology presents no obstacle to the authorship by St J. the Apostle, and much internal evidence is adduced in support of the traditional view that it was written by him in his old age.

The traditional view well explains the peculiar characteristics of the Gospel, and the conditions under which he would have written are excellently expressed by Dr Armitage Robinson: 'The old disciple needs no documents to compile as others might compile a laboured hist. The whole is present in his memory, shaped by years of reflection, illuminated by the experience of a lifetime.' On the other hand new archaeological discovery has led many to place J.'s Gospel much earlier. We possess papyrus fragments of the Gospels, including J., dating back to the early years of the 2nd cent., and part of a life of Christ based on all 4, of similar date. Torrey holds that it is a trans. of an Aramaic original written well before AD 70. Some radical scholars (e.g. Goodenough) now think it the earliest of all the Gospels. Olmstead, the ancient historian, in 1942 insisted that the narratives of J. were written down in Aramaic before AD 40 and were later put into Greek, so that they are the oldest and most authentic sources for the life of Christ. Certainly archaeology has most remarkably confirmed the topographical allusions in J., and these must be earlier in origin than AD 70 when Jerusalem was destroyed. J. had been forced like Peter to leave Palestine, and he lived to an old age in Ephesus. The accuracy of his local colouring is so remarkable that Albright (*Archaeology of Palestine*, 1949) maintains that the story he tells was put into substantially its extant form before 66-70 AD. The Dead Sea scrolls have proved that much of the imagery of Light and Darkness that distinguishes the fourth Gospel was current in Judaism among the Essenes in the time of Christ. It is not derived from later philosophic or pagan sources. See F. C. Burkitt, *Gospel History and its Transmission*, 1906; B. Westcott, *Gospel of St John*, 1908; J. Donovan, *The Authorship of St John's Gospel*, 1936; F. R. Hoase, *The Original Order and Chapters of St John's Gospel*, 1944; A. C. Headlam, *The Fourth Gospel as History*, 1948; also works by A. Plummer, 1913; J. Lagrange, 1925; G. H. MacGregor, 1928; J. O. Murray, 1936; P. Gardner-Smith, 1938; E. C. Hoskyns, 1938; N. Davey, 1938.

**John, Knights of St, see HOSPITALERS, KNIGHTS.**

**John**, the name of 22 popes, of whom the most celebrated are:

**John I, St** (523-6), native of Tuscany, succeeded Hormisdas and was a friend of Boethius. Sent to Constantinople by Theodoric to obtain toleration for Arians, but on his return was imprisoned by the king who was dissatisfied with the mission. He *d.* in captivity.

**John IV** (640-2), native of Dalmatia, succeeded Severinus. He condemned the Monothelite heresy.

**John VI** (701-5), of Gk birth, succeeded Sergius I. Appealed to in the conflict between St Wilfrid of York and the see of Canterbury, decided in favour of the former.

**John VIII** (872-82), native of Rome, succeeded Adrian II. Saracens ravaged

Rome during his pontificate. He supported Charles the Bold's claim to the empire, and crowned him in 875. See A. F. De Montor, *Histoire des souverains pontifes*, 1849; F. Dvornik, *Les Slaves, Byzance et Rome du IX<sup>e</sup> siècle*, 1926.

**John X** (914-28), native of Romagna, succeeded Lando. Placed himself at the head of an army and drove Saracens from Italy. Said to have been murdered.

**John XXII** (1316-34), native of Cahors, France, b. at Cahors in 1249. His name was Jacques Duesc de Deuze. He endeavoured to propagate Christianity in distant lands and is important in Ger. hist. for taking active part in disputes of Emperors Louis of Bavaria and Frederick of Austria. See also POPES, LIST OF THE.

**John** (c. 1167-1216), King of England, probably b. Oxford, the youngest son of Henry II and Eleanor of Aquitaine, nicknamed John Lackland, though in fact he acquired large estates by gift and by his first marriage. In 1185 he was sent as governor to Ireland, but his administration was not a success, and he was soon recalled. J.'s coalition with his brother Richard and Philip of France in 1189, in circumstances of peculiar treachery, was traditionally regarded as Henry II's death-blow. During Richard's absence in the Holy Land he plotted against him continually and is said to have joined Philip of France in opposing Richard's release. From 1194 relations between the brothers were better. In 1199 J. became king, and the death of Arthur, son of his elder brother, Geoffrey, in 1203—probably murdered on J.'s orders—removed his closest rival to the crown. His foreign wars were disastrous, although J. himself was an able soldier. Philip of France annexed Normandy, Anjou, Maine, and Touraine without great difficulty. In 1205 began the great struggle between J. and the Pope, Innocent III, over the election to the Archbishopric of Canterbury, which led to the interdict of 1208, the deposition of 1211, and the excommunication of 1212. Eventually J. submitted, agreed to hold his kingdom as a fief of the papacy, and to accept the Pope's nominee, Stephen Langton (q.v.), as archbishop. But his arbitrary rule at home, coupled with the defeat of his forces at Bouvines (1214) by Philip, and the loss of Poitou stirred the barons to revolt, and, led by Stephen Langton, they forced the king to sign Magna Carta (q.v.) at Runnymede (15 June 1215). J. had probably no intention of keeping his promises from the start and induced the Pope to annul the charter. The barons appealed to Philip of France, and the Dauphin Louis had landed in England when J. suddenly d. at Newark. He married (1) Isabella of Gloucester; (2) Isabella of Angoulême. J. had great ability and his reign was not, as has sometimes been supposed, an unqualified disaster. In his dealings with the papacy, for example, he frequently managed to emerge surprisingly well. During the interdict he was able to appropriate for himself large eccles. revenues which com-

pensated for the moneys he had been unable to obtain from his lay subjects, and by the end of his reign he had papal backing against his enemies. He appears to have been unusually unscrupulous in an unscrupulous age, and his opportunism succeeded less well than it might have done, because he pursued it in virtual isolation and left the way open for his enemies to combine against him. See Kate Newgate, *John Lackland*, 1892, and E. B. D'Auvergne, *John, King of England*, 1934.

**John II** (1319-64), King of France, surnamed 'the Good,' succeeded his father, Philip VI, 1350. He alienated a powerful section of the nobility by his choice of favourites and his attempts at arbitrary rule. J. was taken prisoner by the English at the battle of Poitiers in 1356. He returned to France after the Peace of Brétigny, but when his ransom could not be raised, owing to the poverty of the country, J. returned to England in 1364 and d. there later the same year.

**John II**, or **Hans** (1481-1513), King of Denmark (from 1481) and of Norway and Sweden (from 1497), was occupied with wars and rebellions throughout his reign. His expedition against the Dithmarschers in S. Schleswig (1500) failed completely. This disaster led to revolts in both Norway and Sweden, and though the former kingdom was pacified in 1508, the latter continued the struggle till within a year of John's death. Under Sten Sture, and later under Svante Sture, who had gained the support of the Hansa tns, the Swedes succeeded in throwing off the Danish yoke (1501).

**John**, kings of Poland, who reigned during the following periods:

**John I** (1492-1501), gallant soldier but a poor statesman. A rebellion in Moldavia frustrated his projected crusade against the Turks.

**John II** (*Castmir*). See under CASIMIR.

**John III** (*Sobieski*) (1674-96), b. 1674 in Galicia, the son of the castellan of Crakow. He served with distinction in the army, and became commander-in-chief in 1668, having gained important victories over the Cossacks and Tartars (or Tatars) in the Ukraine. A splendid victory over the Turks in 1673 secured him the Polish throne after Michael Korybut's death. By the treaty of Zaravno (1676) he recovered most of Ukraine from the Turks. In 1683 he drove them from Vienna, and after a brilliant victory forced them to retire from Hungary, becoming the hero of all Europe; but the last years of his reign were taken up with intrigues at home.

**John**, kings of Portugal:

**John I** (1357-1433), called 'the Great' and 'father of his country,' was the father of Henry the Navigator. He proved a wise ruler, though his reign was darkened by continuous strife with John I of Castile.

**John II** (1455-95), called 'the Perfect,' curbed the powers of his haughty noblemen, and drew up the celebrated treaty of Tordesillas with Castile (1494).

**John III** (1502-57), bid fair to wreck the prosperity of Lisbon and his realm at large by being too partial to the whims of the clerical party.

**John IV** (1603-56), b. Villa Viçosa, became king by popular consent after the rebellion of 1640 against Philip IV of Spain. His reign was occupied with a long struggle with Spain, and at his death his country had not yet reasserted its independence.

**John V** (1689-1750), allied himself with Austria in the war which closed with the treaty of Utrecht (1713), and afterwards became a tool in the hands of the Church party.

**John VI** (1769-1826), was regent from 1799 until 1816, when he became king. He lived in Brazil, and when he returned home in 1822 he agreed to govern on constitutional lines.

**John, Augustus Edwin** (1879- ), painter, b. Tenby, Wales. Attended the Slade School, London, and afterwards lived in Paris and Provence. His pictures were first exhibited at the New English Art Club. He taught art at Univ. College, Liverpool, 1901-2. At the Arts and Crafts Exhibition, Burlington House, 1916, J. exhibited his 'Peasant Industries'—now in the Tate Gallery. He was official artist to the Canadian Corps in the First World War, and designed for it a memorial cartoon, 'Canadians opposite Lens.' By 1921 he was A.R.A.; by 1928, R.A., but resigned in 1938 on account of the Academy's rejection of a sculpture by Epstein. Re-elected R.A., 1940.

He painted portraits of the chief members of the Peace Conference; also of Bernard Shaw (q.v.) (1916), Lord Fisher (1918), Lord Sumner (1918), the Marchesa Casati (1918-19), and the Princess Bibesco (1924). 'The Smiling Woman' (1910) and 'Madame Suggia' (1923), both in the Tate Gallery, have rival claims to be his masterpiece. It is as a portrait painter that he has achieved most fame, his skill in directly representing character and temperament with the brush leaving him without a rival among his contemporaries in this branch of the art. An admirable example is his portrait of Lord Fisher; while the 'Portrait of a Girl' and 'Vivian' (also a portrait of a young girl, but in the symmetrical rather than the angular style) emphasise his scorn of aesthetic theory as a substitute for the expression of temperament. Early interest in nomadic life and travels in Ireland and Wales produced a series of admirable subject paintings and landscapes. His sense of colour values is well exemplified in his landscapes of S. France and in paintings of flowers. His fine 'Les Martignes' has been compared with the work of Cézanne (q.v.). J. is also superb as a draughtsman, and has made a number of fine etchings. Elected president of the Royal Academy of Wales, 1934. Trustee of the Tate Gallery, 1933-41; Royal Society of Portrait Painters, 1938; O.M., 1942. Collected exhibition at the Royal Academy, 1954. See autobiography, *Charnosuro*, 1952.

**John, Sir William Goscombe** (1860-

1952), sculptor; b. Cardiff; son of Thomas J. He was educ. at Llandaff, and studied in Cardiff School of Art; City and Guilds of London School of Art; and R.A. Schools, receiving the gold medal and travelling fellowship, 1889. He was awarded the gold medal, Paris Salon, 1901, and the gold medal at the Royal Society of Brit. Sculptors, 1942. He is represented in many Eng. galleries; and the works include statues of Edward VII (equestrian), Capetown and Liverpool; Prince Christian Victor, Windsor; D. Lloyd George, Carnarvon; Viscount Wolseley (equestrian), Horse Guards Parade, and Arthur Sullivan memorial, Embankment Gardens, near the Savoy.

**John Bull**, see **BULL**, **JOHN**.

**John Dory**, see **DORY**.

**John Lewis Partnership**, The, was founded by a Settlement in Trust, 1929, and completed by a second Settlement in 1950. It comprises (1957) some 20 dept stores in various parts of the U.K., including the business of John Lewis & Co. and Peter Jones of London, about 20 specialist food and other shops, 3 'supermarkets,' farms, and production units. After the usual provision for reserves and payment of a fixed rate of interest on borrowed capital (averaging less than 4½ per cent on the £14½ million of issued share capital) the whole of the remaining profits are divided among all the workers in all the Partnership companies. See J. Spedan Lewis, *Partnership for All*, 1949.

**John Nepomucen**, St (c. 1345-93), patron of Bohemia, b. Nepomuk, or Pomuk, near Pilsen. Educ. at the univ. of Prague, he entered the church, and became confessor to Sophia, wife of Wenceslaus IV. Refusing to reveal to Wenceslaus what he had heard from the queen in sacramental confession, he was flung into the Moldau. The feast of his martyrdom is celebrated on 16 May.

**John of Arderne** (1307-80), surgeon. Nothing is known of his early life. He practised first in Wilts and served as an army surgeon in the service of Henry Plantagenet, Earl of Derby. He next went to Newark, where he practised for many years, and in 1370 moved to London. J. was a well-educ., sound, practical surgeon, with a practice among the wealthier classes. His writings were collected after his death and preserved in a MS. now in the Royal Library, Stockholm. This MS. is a vellum roll 17 ft 8 in. in length by 15 in. A replica in London was trans. and pub. by Sir D'Arcy Power, *De Arte Physicale et de Chirurgia*, 1922. J.'s most important contribution to surgery was his operation for fistula-in-ano; his fee for the operation was £40, a suit of clothes, and 100 shillings per annum as long as the patient lived; his treatise on the subject, written about 1376, was ed. and pub. by Power in 1910.

**John of Austria** (1545-78), soldier, the natural son of Emperor Charles V. He grew up a man of far-reaching ambitions, and the tragedy of his disappointed life may be traced to the petty jealousy of his

half-brother Philip II of Spain, who was always at pains to defeat these ambitions. Philip had designed that he should become a monk, but Don John chose a soldier's career, and gained signal honours, first against Algerian pirates, then against the Moors of Granada (1570), and finally at the decisive naval battle of Lepanto (1571), when he was admiral of the combined fleets of Venice and Spain. Felled in his project of a kingship over Tunis, Don John was finally appointed Viceroy of the Netherlands (1576). Here he was powerless from lack of funds, men, or any support from Philip. His opponent was the redoubtable William the Silent. In 1577 he was forced to surrender and to recognise the 'Pacification of Ghent.' See lives by Sir W. Stirling-Maxwell, 1883, and G. Slocombe, 1935.

**John of Bohemia** (1296-1346), 'the Blind,' son of Emperor Henry VII, also known as J. of Luxembourg. In 1310 he was crowned King of Bohemia (q.v.). Some years later, when the royal houses of Bavaria and Austria were contending for the imperial crown, J. secured the prize for the former by his victory at Mühldorf (1322). For 2 years (1333-5) he fought in Italy against the Ghibellines, and eventually met his death at Crécy (q.v.), where he was supporting the Fr. king. Blindness overtook him towards the end of his life.

**John of Gaeta**, see GELASIVS II.

**John of Gaunt** (1340-99), Duke of Lancaster, fourth son of Edward III, b. Ghent, Flanders. In 1359 he married Blanche, heiress to the Duchy of Lancaster, and was himself created Duke of Lancaster in 1362. Their son later became Henry IV of England. Blanche d. in 1369, and 3 years later J. of G. married Constance, daughter of Pedro the Cruel of Castile and assumed the title of King of Castile in 1372. His efforts to estab. his claim against his rival, Henry of Trastamare, proved unsuccessful, and in 1387 he renounced all claims in favour of his daughter Catherine. He was an ambitious man and was popularly blamed for many of the evils of the day, and certainly added to the troubles of his nephew, Richard II, by his intrigues. He used Wycliffe and the Lollards as pawns in his intrigues against the crown and the court party; but it is doubtful if he had any real interest in Wycliffe's theology. In 1394 his wife, Constance, d. and he married his mistress, Catherine Swynford, his children by whom were legitimised in 1397. They were the Beauforts, and included the cardinal of that name. See S. Armitage-Smith, *John of Gaunt*, 1905.

**John of Kronstadt**, **Father** (1829-1908), Russian Orthodox priest. Joann Sergeiev took his divinity degree in 1885 at the theological academy of St Petersburg, and became priest of the Collegiate church of Kronstadt, where he soon gained extraordinary influence, his sermons arousing such enthusiasm that miracles of healing were attributed to him. People of every class flocked to him with their bodily and spiritual troubles, and with their alms he

founded numerous charitable institutions. He violently opposed the teaching of Tolstoy. His pubs. include *Ma chère vie dans le Christ*, *Sermons sur le Dieu Créateur*, *Sermons et instructions*, *Quelques mois de réponse aux fausses doctrines du comte Tolstoy*, etc.

**John of Leyden**, properly **Johann Beuckels**, or **Borkhold** (1509-36), a Dutch tailor who settled in Leyden as an inn-keeper. A disciple of the Anabaptist Matthias, he was sent on a mission to Münster (1533). His fiery oratory soon gathered a company of zealous converts, known as the 'saints.' This success led to a strange episode. For a twelvemonth J. became King of Münster, assumed the royal purple, married sev. wives, dispensed justice in the market-place, and put his enemies to death. In 1535 the bishop recovered the city, and J. was tortured and executed.

**John of Salisbury** (c. 1115-80), philosopher and ecclesiastic. Studied at Paris (1136-46), where his teachers included Abélard, Wm of Conches, and Richard l'Évêque. Returning to England c. 1150, he became secretary to Archbishop Theobald and, later, to St Thomas à Becket. J. of S. was sent by Henry II on sev. diplomatic missions, and delivered to that monarch the papal bull authorising the conquest of Ireland. From 1164 to 1170 he shared Becket's exile in France, during which time he wrote the *Historia Pontificalis*. He was present at the archbishop's murder in Canterbury Cathedral. Six years later (1176) he was appointed Bishop of Chartres, in which capacity he attended the Lateran Council of 1179. His prin. works are *Policraticus*, the picture of an ideal state on the lines of Plato's *Republic*, and *Metalogicus*, a fusion of Augustinian and Aristotelian philosophy. Both have been ed. by C. C. J. Webb; the former in 1909, the latter in 1929. J. of S. also wrote 2 lives of St Anselm and that of St Thomas à Becket.

**John of the Cross**, **St** (**Juan de Yepes**) (1542-91), b. Fontiveros, Old Castile. He joined the Carmelites at Medina in 1562, and studied theology at Salamanca (1564-7). He assisted St Teresa (q.v.) in the Carmelite reform, and was her confessor from 1572 to 1577. During the next year he was imprisoned at Toledo and subjected to the vilest maltreatment by the unreformed branch of his order. He escaped under the most dramatic circumstances, was made prior of sev. reformed houses, and appointed visitor of the Andalusian prov. in 1585. The remaining years of his life witnessed renewed suffering and humiliation. He d. in obscurity at Ubeda. St J.'s writings (*The Ascent of Mount Carmel*, *The Dark Night of the Soul*, and *The Spiritual Canticle*) are masterpieces of mystical theology and among the glories of Sp. literature. They have been trans. into Eng. by E. A. Peers (1932). St J. was canonised in 1726, declared a Doctor of the Church in 1926; his feast is on 24 Nov. See his life by Father Bruno, O.D.C., 1938.

**John o' Groat's House**, 1½ m. W. of Duncansby Head in Caithness, Scotland. The expression is proverbially used for the most northerly point of Great Britain.

**John Rylands Library**, founded by the widow of John Rylands (1801-88), cotton merchant of Wigan, who d. intestate leaving his widow to succeed to a fortune of over £2,000,000. In 1888 she bought the splendid library of Earl Spencer of Althorp. To house it she built in Deansgate, Manchester, the present Gothic building. An endowment was also provided and the collection has since been extended by the addition of many other books and MSS., making it one of the finest libraries in England. It is open to registered readers for reference only.

**John the Baptist**, son of Zacharias, a priest of the Temple, and Elizabeth, a kinswoman of the Blessed Virgin, b. to them in their old age according to the promise of an angel (Luke 1. 5). His bp. is generally identified as Aïn Karim, 5 m. W. of Jerusalem. The immediate forerunner of Christ, he was the last of the great prophets to preach repentance and the coming of the Messiah. J. lived in the wilderness of Judea until, probably at the age of 30, he appeared as a preacher near the Jordan. Such as came to him confessing and penitent he baptised, his baptism being the sign of inward repentance and amendment (Josephus, *Antiquities of the Jews*, xviii, v. 2). Jesus also came to him for baptism, and on this occasion J. makes a clear confession and acknowledgment of his own inferiority. His preaching caused a great stir, and people from all parts of the country crowded to hear him. He did no miracle; but his form, his manner of life, his intrepid rebuke of wickedness in high places, recalled the most striking prophetic figures of O.T. times. His denunciation of Herod Antipas furnished the pretext for his imprisonment, while it incurred the deadly hatred of Herod's partner; and in due course he was murdered in prison (Matt. xiv.). Josephus lays the scene of his murder in Machaerus, the fortress of the Dead Sea. Tradition says that his body was buried at Samaria, where the Crusaders built the church of St. J., now a Muslim mosque. The head is said to have been finally buried in Damascus.

**John's, Eve of St**, see ST JOHN'S, EVE OF.

**John's College, St. Cambridge**, founded in 1511 by the Lady Margaret Beaufort. Her executors supervised its building, among them Bishop Fisher of Rochester. There are 6 courts; the most easterly with its fine Great Gateway dates from the Tudor period; Second Court contains a panelled master's gallery with fine mouldings (1598-1602) and leads into Third Court (1721) whence the so-called Bridge of Sighs (1831) crosses the riv. to New Court (19th cent.). Chapel Court and North Court were designed by Sir E. Maufe after World War I. Lord Burghley, Roger Ascham, Wordsworth, Castlereagh, Palmerston, Sir J. Herschel, and Sir John Cockcroft were students here.

**John's College, St. Oxford**, see ST JOHN'S.

**Johns Hopkins University and Johns Hopkins Hospital**, at Baltimore, Maryland, U.S.A., owe their existence primarily to the contribution of \$7,000,000 by Johns Hopkins (q.v.), a rich merchant of Baltimore. The univ., with Daniel Coit Gilman as president, opened its doors in 1876; the hospital in 1889. Since 1902 the univ. has developed a new campus of 125 ac. on the N. edge of Baltimore, with buildings of Georgian colonial style. It has undergraduate courses in arts and sciences, business and industrial management, and engineering, a faculty of philosophy, and schools of medicine, engineering, hygiene and public health, and advanced international studies. The univ. library contained 1,000,000 vols. in 1955. Teaching staff, 1384; students, 7247. The Johns Hopkins Press is affiliated.

**Johnson, Amy** (1905-41), Eng. airwoman who became famous in 1930 for her flight from England to Australia in 19 days, being the first woman to accomplish the flight alone. In 1931 she flew to Tokyo across Siberia and thence back to Britain, and in the following year beat by 10½ hrs. the record set up by J. A. Mollison (whom she had married in that year) in flying to the Cape. In 1933, with her husband, she made a successful crossing of the Atlantic via Newfoundland but was obliged to make a forced landing when within 60 m. of New York. Perhaps her greatest achievement was in 1936, when she flew to the Cape and back and beat both the outward and homeward records. In the Second World War she worked as a ferry pilot for the Air Transport Auxiliary and was killed in the Thames estuary.

**Johnson, Andrew** (1808-75), seventeenth president of the U.S.A., b. Raleigh, N. Carolina, his father being a porter at an inn, his mother a maid there. He was apprenticed to a tailor. In 1826 he moved with his family to Tennessee, where he set up his own shop. At 19 years of age he married and his wife taught him to write. From 1830 to 1834 he was mayor of Greenville, Tennessee; for 4 years between 1835 and 1841 he sat in the state House of Representatives, and later in the state Senate. Next year he was elected to Congress, where he remained for 10 years (1843-53), and finally to the national Senate (1857-62). From 1853 to 1857 he was governor of Tennessee. On the declaration of civil war, President Lincoln made him military governor of Tennessee. In 1864 he was nominated for the vice-presidency on the same ticket as Lincoln, and after Lincoln's assassination he became president (1865-9). But the adoption of his predecessor's lenient policy with regard to the rebellious S. states was misconstrued as deliberate disloyalty, and he was accordingly impeached. The trial ended in his acquittal. Later biographies have done much to re-instate his reputation. He retired into private life in 1869, was elected to the U.S. Senate again in 1875, but d. 3

months later. See lives by D. De Witt, 1903, and R. W. W. Winston, 1928.

**Johnson, Eastman** (1824-1906), Amer. artist, b. Lovell, Maine; he studied at Düsseldorf and in Italy, France, and Holland. Among his works are 'The Old Kentucky Home,' 1867, 'The Old Stage Coach,' 1871, 'Cranberry Harvest,' 1880, and many portraits.

**Johnson, Francis** (1796-1876), orientalist. Held the chair of Sanskrit and Telugu at Hallebury College (1824-55), as well as of Bengali (1845-55). Ed. sev. Sanskrit and Persian texts, including the first book of *Hilopadesa*, 1840 (4th ed., 1864), selections from the *Mahabharata*, 1842, the *Gulistan* of Sa'di, 1863, and pub. a *Persian-Arabic-English Dictionary*, 1852.

**Johnson, Hewlett** (1874- ), Eng. ecclesiastic, educ. at Macclesfield, Victoria Univ., and Wadham College, Oxford. Vicar of St Margaret's, Altrincham, 1908. Dean of Manchester from 1924 to 1931; and of Canterbury from 1931. Wrote *The Socialist Sixth of the World*, 1940 (now in its 22nd ed. and trans. into 24 languages, entitled in America, *The Soviet Power*). He wrote a sequel on the same theme, *Soviet Success*, 1947.

**Johnson, Jakobina** (1833- ), Icelandic poetess who for the greater part of her life has resided in Canada and the U.S.A. Her original verse is rich in beauty, and she has won renown by her sensitive trans. of Icelandic poetry into English.

**Johnson, John Arthur ('Jack')** (1878-1946), Amer. Negro heavy-weight prize fighter, b. Galveston, Texas. At 22 he was a milk-roundsman in Galveston; at 23 he was winning money in the ring and in his first 8 years of prize fighting he was beaten only twice. He first became known in 1907 by beating Robert Fitzsimmons in 2 rounds at Philadelphia. The following year he became the first coloured heavy-weight champion of the world by beating French-Canadian Tommy Burns at Sydney. His most famous fight, however, was in 1910, when, at Reno, he defeated Jim Jeffries; for feeling had run high in America over the match and the defeat of the 'white man's hope,' as Jeffries had been called, caused much dissatisfaction. After J. had performed in the music-halls in the States and in Great Britain, an attempt was made to arrange a match with Bombardier Wells in England in 1911, but the home secretary would not allow it to take place. Soon afterwards the suicide of J.'s white wife (Etta Duryea, whom he had married in 1909) revealed the acuteness of the race question in America. On 5 April 1915 J. lost to Jess Willard at Havana, but was only knocked out after twenty-six battering rounds. In all, his major fights numbered 109 in 29 years in the ring. But the \$100,000 he is said to have made was soon dissipated in the purchase of a luxurious restaurant in Chicago and of an expensive house in an exclusive suburb of New York. He wrestled in Paris, appeared in the bull-ring in Spain, his head bald and his great figure paunched, and once he played the part of a general in the

opera *Aida* in New York. He pub. *Mes Combats* in 1914. He d. in hospital at Raleigh, N. Carolina, 2 hours after his car crashed into a telegraph pole.

**Johnson, Lionel Pigot** (1867-1902), poet, b. Broadstairs, Kent. After studying at Westminster and New College, Oxford, he settled in London and lived a secluded and bookish life, contributing critical articles and reviews to various periodicals. In 1891 he was converted to Roman Catholicism and became deeply interested in the Irish Renaissance. His two vols. of poetry, *Poems*, 1895, and *Ireland, with Other Poems*, 1897, drew much of their inspiration from anct Celtic legend; though his best-known piece is 'On the Statue of King Charles at Charing Cross.' His health became undermined by drink and insomnia and he d. as the result of a fall in Fleet Street. His *Reviews and Critical Papers* were pub. in 1921. See memoir by C. K. Shorter, 1908.

**Johnson, Richard** (1573-c. 1659), miscellaneous writer, b. London. While still an apprentice he pub. *The Nine Worthies of London*, 1592. His best-known work is *The Famous Historie of the Seven Champions of Christendom*, 1596, which is mentioned in Meres's *Palladis Tamia*. Others of J.'s works are *The Pleasant Walks of Moorfields*, *The Pleasant Conceits of Old Hobson*, and *The Most Pleasant History of Tom a Lincolne*, all pub. in 1607. *Look on Me, London*, 1613, is a pamphlet on London abuses. Vols. of verse include *A Crowne Garlande of Golden Roses*, 1612, and *The Golden Garland of Princely Pleasures* (3rd ed.), 1620.

**Johnson, Richard Mentor** (1781-1850), ninth vice-president of the U.S.A., was admitted to the Bar in 1802, and sat in Congress from 1807 to 1812 and from 1811 to 1819, and was for many years a member of the Senate. In 1836 the Democratic party nominated him and the Senate elected him to the vice-presidency, which he retained till 1841. His chief claim to fame rests on his part in the war of 1812 with England. In command of cavalry from Kentucky he helped to clear Michigan of the invading Eng. troops. In the victory of Thames, J. killed the famous chief Tecumseh, who led the Indians who favoured the Eng. cause.

**Johnson, Robert Underwood** (1853-1937), Amer. poet and editor, b. Washington, D.C. From 1873 he was connected with the *Century Magazine*, of which he became editor in 1909. From 1920 to 1921 he was Amer. ambas. at Rome. Among his vols. of verse are *The Winter Hour*, 1891, *Songs of Liberty*, 1897, *The Poet of Honour*, 1930, *Poems of Fifty Years*, 1931, and *Aftermath*, 1933. *Remembered Yesterdays*, 1923, is a book of memoirs.

**Johnson, Samuel** (1709-84), lexicographer, critic, poet, and essayist, b. Lichfield, the son of a bookseller. A precocious boy, he was from early days a great reader; and a customer of his father, struck by the lad's talents, sent J. in 1727 to Pembroke College, Oxford, where he distinguished himself by his classical



erudition. After acting as an usher at Market Bosworth Grammar School, he married, in 1735, the widow (d. 1752) of Henry Porter, a Birmingham mercer, and settling at Edial, took private pupils, amongst whom was David Garrick (q.v.). In 1737 he went to London with Garrick, determined to earn a livelihood by his pen. He soon became a regular contributor to the *Gentleman's Magazine*, and for some time prepared the parl. reports which appeared in that periodical. He did much hack-work for Cave, the publisher of the magazine; but it was Dodsley



SAMUEL JOHNSON

who pub. J.'s poem *London* (1738), for the copyright of which the author received £10. Six years later he wrote a biography of his friend Richard Savage, with whom he had sometimes roamed the streets at night for want of the price of a lodging. In 1747 he issued the plan of his *Dictionary*, upon which, with the help of six amanuenses, he laboured for eight years. He pub. the best of his poems, *The Vanity of Human Wishes*, in 1749; and in the same year Garrick produced *Irene* at Drury Lane Theatre, where it ran for nine nights. J. in 1750 conceived the idea of a paper on the lines of the *Spectator*, which he called the *Rambler*, issued twice a week from 20 March. It brought him a wider fame than any of his earlier writings. In 1754 Lord Chesterfield, to whom the plan of the *Dictionary* had been inscribed long ago, now repented himself of his continued neglect of its compiler, and in the *World* wrote two papers commending the work; whereupon J., whose pride had been outraged, replied in the famous oft-quoted letter (7 Feb. 1755), in which he said that the notice, 'had it been early, had been kind,' and added, 'but it has been delayed

till I am indifferent and cannot enjoy it; till I am solitary, and cannot impart it; till I am known and do not want it.' The quiet severe dignity of this inimitable letter alone would have made its author famous. J.'s mother d. in 1759, and to pay the expenses of her illness and funeral he wrote *Rasselas*, the most popular of all his works. Three years later his financial troubles came to an end with the grant by Lord Bute of a Civil List pension of £300 a year. In 1765 he brought out his long-promised ed. of *Shakespeare*, and between 1779 and 1781 pub. *The Lives of the English Poets*. In 1773 he made a journey with Boswell to the Scottish highlands, related to his *Journey to the Western Islands of Scotland*, 1775, and in Boswell's *Journal of a Tour to the Hebrides*, 1785. J. had acquired a position in literary and artistic circles that has rewarded the efforts of no other man. He was the acknowledged dictator of 'The Club,' founded in 1763 by himself and Sir Joshua Reynolds, and numbering among its limited membership Burke, Beauchamp, Langton, Hawkins, Boswell, Garrick, Gibbon, Fox, Sheridan, and Adam Smith. There he laid down the law to all and sundry in that witty, truculent style of conversation which Boswell has made familiar. Among his private friends were the Thrales and the Burneys, and with those he made excursions to different parts of England, a fascinating companion, if not always a pleasant guest. After Thrale's death he quarrelled with the widow, who became the wife of Piozzi. As a writer he had a ponderous style, which was often burlesqued, and was best described by Goldsmith, who said that the Doctor would make little fishes talk like whales. He was didactic to an extraordinary degree, and he inculcated moral sentiments with gusto in season and out of season in *Rasselas* as in the *Rambler*. A man markedly disposed to belief in superstitions, he had notwithstanding very deep religious faith, as can be clearly seen in the posthumous *Prayers and Meditations* (1785). He had great courage, and a tender regard for humanity that was evinced in the kindness for and the generosity he displayed towards the unhappy, the poor, and the weak. J. is the most familiar figure of the 18th cent., and if in the first place he owes this to his remarkable personality, in the second he is indebted for it to Boswell, who, in his biography, the masterpiece of biographies, has painted him to the life. The best ed. of Boswell's work is that brought out by Dr Birkbeck Hill (6 vols.), 1887. See James Boswell, *The Life of Samuel Johnson, LL.D.*, 1791; Leslie Stephen, *Dr Johnson*, 1878; W. Raleigh, *Six Essays on Johnson*, 1910; S. C. Roberts, *The Story of Dr Johnson: being an Introduction to Boswell's Life*, 1922; J. Bailey, *Dr Johnson and his Circle*, 1927; R. Lynd, *Dr Johnson and Company*, 1927; M. C. Struble, *A Johnson Handbook*, 1933; W. B. Watkins, *Johnson and English Poetry before 1660*, 1936; Sir A. McNair, *Dr Johnson and the Law*, 1948; J. W. Krutch, *Samuel Johnson*,

1948; J. H. Hagstrum, *Samuel Johnson's Literary Criticism*, 1952.

Johnson, William Eugene (1862-1945), Amer. temperance advocate, known as 'Pussyfoot' J., b. Coventry, New York state. He wrote articles on temperance which had a wide circulation in smaller newspapers in the U.S.A., and in 1895 became associate editor of *The Voice*, New York, the organ of the temperance cause. In 1905 he went to Washington to work among Congressmen for temperance legislation. The Federal Gov. was powerless over the liquor traffic in the various states, but Theodore Roosevelt appointed J. Federal agent to enforce the law, especially in Oklahoma. By his swift and noiseless methods—whence his sobriquet of 'Pussyfoot'—he secured thousands of convictions against bootleggers. In 1911 he retired in order to devote himself to the cause of prohibition which was then rapidly becoming a political issue throughout the U.S.A. Later he set out to convert other countries, including Sweden, China, India, Russia, and Italy. He came to London in 1919, but while preparing to address a meeting was 'ragged' by students, and a missile was thrown which caused the loss of his right eye.

Johnson City, tn in Washington co., Tennessee, U.S.A. It is a rail junction and a trade and shipping point for the surrounding mountainous area of timber, farms, and limestone quarries. It is a burley tobacco market, and manufs. wood products, bricks, textiles, and pig iron; there are also foundry, limestone, and dairy products, and flour- and saw-milling. It is the seat of E. Tennessee State College and near by is Milligan College. Pop. 27,865.

Johnson, Albert Sidney (1803-62), Amer. general, b. Kentucky, graduated at W. Point. In the army he rapidly rose to the command of the forces of Texas and successfully banished the Indian marauders from the N. of that state. After serving in the Mexican war he was appointed paymaster to the U.S. Army (1849), and in 1858 quelled the Mormon revolt without bloodshed. On the outbreak of civil war he joined the Confederates, but was mortally wounded at Shiloh (1862). President Davis pronounced his loss irreparable. This battle came near to being the graveyard of all Gen. U. S. Grant's hopes for fame. J. completely surprised him and the first day's fighting favoured the Confederates. But J. was hit in the thigh by a cannon ball. Had he submitted to surgical treatment his life might have been saved; but he dismounted in the midst of his men and d. fighting. The next day the reinforced Union troops won the contest.

Johnston, Alexander Keith (1804-71), Scottish geographer, was an exceptionally accomplished linguist and a skilful designer. His *magnum opus* was his *Physical Atlas*, 1848, which illustrates the zoology, geology, botany, meteorology, and ethnology of the world, and was described by the Fr. Geographical Society in

1851 as 'un des plus magnifiques monuments' of science in the cent. J. pub. also a *Dictionary of Geography*, 1850, a *National Atlas*, 1843, and a splendid *Royal Atlas*, 1861.

Johnston, Alexander Keith (1844-79), geographer, b. Edinburgh, was the son of Alexander Keith J. (q.v.). The *Globe Atlas of Europe*, and the maps of Murray's *Scotland*, were drawn under his direction. In 1878 he was appointed to the command of an expedition to Lake Nyasa, under the auspices of the Royal Geographical Society, but he d. of dysentery and was buried in Africa. 'Africa,' in Stanford's *Compendium of Geography*, and a series of treatises on physical geography are his chief works.

Johnston, Archibald, Lord Warriston (c. 1610-63), advocate and statesman, b. Edinburgh and educ. at Glasgow Univ., who was employed by the Covenanters in framing their protests against the attacks of Laud and the High Church party, and in answering the aggressive proclamations of Charles I. The General Assembly of 1638 chose him as clerk, and later he was deputed with 7 others to negotiate with the Eng. commissioners. Throughout the Civil war he proved so staunch a parliamentarian that Cromwell raised him to the peerage and appointed him as a commissioner-judge of Scotland. After the Restoration he was executed at Edinburgh (1663).

Johnston, Arthur (1587-1641), Scottish writer of Lat. verse, graduated at Padua as M.D. in 1610. During protracted foreign travels he visited Rome, Germany, the Netherlands, and Denmark, spent 20 years in France, and was for some time associated with the univ. of Sedan. About 1625 he was appointed physician to Charles I. His Lat. version of the Psalms (1637) is inferior in popularity and probably in merit to Buchanan's, but his contributions to the *Deliciae Poetarum Scotorum*, 1637, his satire entitled *Consilium Collegii Medici Parisiensis*, 1619, and his elegy on James VI, 1625, prove him a good Lat. scholar and no mean poet.

Johnston, Sir Harry Hamilton (1858-1927), explorer and author; b. Kennington, S. London. After exploring Tunisia and Angola he penetrated into the Congo dist. above Stanley Pool, 1883, and in the following year led a scientific expedition to Mt Kilimanjaro. For 3 years, 1885-1888, he governed Cameroon and the Niger delta as vice-consul or consul in the Brit. interests; and later, as consul for Portuguese E. Africa, he subdued the slave-trading Arabs in the region of Lake Nyasa, and estab. a large Brit. protectorate N. of Lake Tanganyika. For 5 years, 1891-96, he was consul-general in Brit. Central Africa; and for 2 years, 1899-1901, he was employed in the administration of Uganda. Among his books of travel and description are *The Colonisation of Africa*, 1899, and *A History of the British Empire in Africa*, 1910.

Johnston, James Finlay Weir (1796-1855), chemist, studied under Berzelius in Sweden, and later became prof. of chem.

at Durham Univ. He chiefly interested himself in the relation of his chosen science to agriculture, and for that purpose analysed soils from all parts of the realm. His *Elements of Agricultural Chemistry and Geology* (3rd ed.), 1844, and similarly his *Lectures*, 1883, did much to stimulate cultivation on scientific lines.

**Johnston, Joseph Eggleston** (1807-91), Amer. general, graduated at W. Point, and fought in the Black Hawk and Seminole wars. In 1861 he seceded from the U.S. Army to join the Confederate forces, and was given the command of the army of the Shenandoah. At the first battle of Bull Run he promptly relieved Beauregard and in 1862 was seriously wounded at the battle of Fair Oaks, where he commanded. In 1864 began his famous duel with Sherman, the opposing Federal leader, who lost during the daily actions and skirmishes some 26,000 men to J.'s 10,000. In 1865, after a desperate resistance at Bentonville, he surrendered to Sherman on terms similar to those of Lee. He wrote *Narrative of Military Operations directed during the late war between the States*, by J. E. Johnston, 1874. See life by G. E. Govan and J. Livingood, 1956.

**Johnstone, Family of**, Border family, notorious for its turbulence and feuds with its neighbours, especially the Douglasses and Maxwells. The family took its name from the lordship of Johnstone in Annandale, Dumfriesshire, and 3 branches of the family still exist: Johnstone of Annandale, Johnstone of Westerhall, and Johnstone of Hilton and Caskieben in Aberdeenshire. All 3 branches claimed the title of Earl of Annandale which had become extinct in 1658; Charles II decided the claim in favour of a member of the first, the Earl of Hartfell, who was created Marquess of Annandale in 1701.

**Johnstone, burgh in Renfrewshire**, Scotland, about 3 m. SW. of Paisley. The tn has cotton mills, manufs. of bootlaces, brass and iron foundries, and machine shops. Pop. 16,321.

**Johnstown**: 1. City and co. seat of Fulton co., New York, U.S.A., in the foothills of the Adirondacks, on Cayadutta Creek, and 40 m. NW. of Albany. It manufs. woollen and leather gloves, leather garments, boots and shoes, and has some light industries. A number of 18th cent. houses are to be seen, including Johnson Hall, 1762, home of Sir Wm Johnson who founded J. in 1760.

2. Industrial city of Cambria co., Pennsylvania, U.S.A., 55 m. ESE. of Pittsburgh at the confluence of Conemaugh R. and Stony Creek, in mt region. Iron and steel, bituminous coal, machinery, machine tools, clothing, packed meat, chemicals, and furniture are produced. It was flooded in 1889 with the loss of 2000 lives. Pop. 63,232.

**Johore**, state of the Federation of Malaya, at the S. extremity of the Malay Peninsula, under the rule of a Malay sultan. Before the creation of the Malayan Union in 1946 J. was one of what were known as the Unfederated Malay

States and its relations with Great Britain were defined by a treaty dated 1885, by an amendment of which, in 1914, the sultan agreed to accept, and to act upon the advice of, a Brit. officer called the General Adviser. The Sultan (Ibrahim, proclaimed 1895) is assisted by an Executive and a Legislative Council. The coast is swampy, and the general character of the country low-lying and covered with forest. The highest peak is Mt Ophir (3840 ft) and the prin. riv. the Muar. J. is connected by rail with Penang and Singapore. The chief products are rubber, gambier, black pepper, coffee, and timber. Prin. imports are food, drink, tobacco, raw materials; the prin. export rubber. Trade is conducted mainly through Singapore. There are 121 m. of railway in J. state and 875 m. of metallised road; thus, with the help of navigable rivs., good communication is available. Rubber estates are situated on either side along nearly the whole length of the railway. Area 7500 sq. m.; pop. (1955) 932,500, of whom 422,000 were Malays, 427,600 Chinese, and 75,300 Indians.

Brit. relations with J., most southerly state on the peninsula and therefore very near Singapore, were close throughout last cent., but the formal treaty with the Sultan was only signed in 1914. The Brit. Adviser was withdrawn in 1956, by mutual agreement, as a result of new constitutional arrangements by which J. became a member state of the Federation, which proclaimed its independence on 31 Aug. 1957.

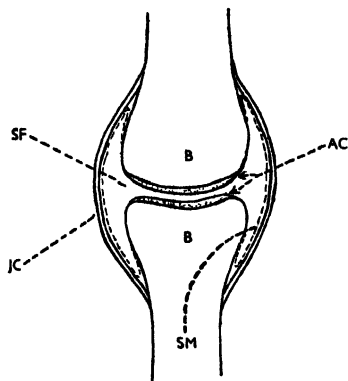
**Johore Bahru**, cap. of the state of Johore, Malay Peninsula, on the S. coast, about 15 m. N. of Singapore. It has a fine palace built by the Sultan Abubakar. A causeway for freight and passenger traffic was opened in 1923 across the Straits between J. B. and Singapore. It carries a 28-ft roadway besides the double rail track. The rail and road causeway is 34 m. long. Pop. 46,000.

**Joigny**, Fr. tn in the dept of Yonne, on the Yonne. It has the remains of a castle, and produces wine and woollen goods. Pop. 6100.

**Joinery**, complementary craft to carpentry (q.v.); the latter is concerned with the structural parts, the former with the ornamentation of buildings, etc. It includes the work done at the bench in the preparation of the finished woodwork of buildings, such as doors, window frames, cupboards, etc. The joiner works almost entirely in planed or wrought wood, whilst the material used by the carpenter is not so treated. The timber for joiner's work should be seasoned until it has lost one-third of its weight. The operations of J. require greater accuracy than those of carpentry; the joints must be accurately fitted and all exposed surfaces made smooth. The wood used by joiners is called *stuff*, and consists of planks or boards, deals, and battens, so named according to their widths. Battens vary from 2 to 7 in. in width, deals are 9 in., and planks 11 in. Matchboarding has a

court may direct a sale unless the others buy out the interest of the party or parties requesting sale.

**Joints.** Study of anatomical J. is technically termed arthrology and includes an examination of the connections between any 2 or more parts of the skeleton. It is usual to divide J. into 2 classes, viz. *immovable* and *movable*, and the latter again into *perfect* and *imperfect*. Examples of the immovable (synarthroses) are those formed where an ossification takes place, as in a membrane, e.g. a suture of the skull. A special form of immovable junction is shown in the gomphoses or peg and socket J. of the fangs



STRUCTURE OF A PERFECT JOINT  
(DIARTHROSIS)

B, bone; AC, articular cartilages; SM, synovial membrane; JC, joint capsule; SF, synovial fluid.

of teeth into tooth sockets of the jaw. Certain bones, which are distinct in early life, tend to join by ossification after middle age. This *synostosis* is shown in the case of the fusion of the distinct *pubis*, *ischium*, and *ilium* into the single *os innominatum*. Imperfect J. (*amphiarthroses*) are those in which the conjoined bones are connected by cartilages or ligaments, the flexibility of which alone allows of any mobility at the junction. Examples of such J. occur in the vertebral column, where thick plates of fibrocartilage separate the flat surfaces of the vertebrae. The arrangement gives considerable springiness to the column, and tends to eradicate shocks caused by the jar in walking, jumping, etc.; at the same time the body may be bent in any direction even though the actual movement between any pair of vertebrae be slight. The *pubic symphysis* and the *sacro-iliac* are only imperfect J., but in consequence of their presence the pelvis has considerably more elasticity than it would have if it were all one bone. In all

perfect J. (*diarthroses*) the articulating bony surfaces are covered with cartilages, the convexities of the one cartilaginous cap fitting more or less closely into the concavities of the other. In some cases these articular cartilages are separated by interarticular plates of cartilage lying between them, and in this case the opposing faces of the interarticular and of the articular cartilages fit into one another; examples of such interarticular plates are the semi-lunar cartilages of the knee joint. The joint is enclosed by a synovial membrane forming a closed sac and containing a viscid lubricating secretion termed synovial fluid. Outside the synovial membrane is a sleeve of fibrous tissue, the capsular ligament. Sacs known as bursae, formed from synovial membrane, are present where J. are subjected to pressure, e.g. the prepatellar bursa of the knee joint, which becomes inflamed in 'housemaid's knee.' The actual shape of the surfaces forming the J. varies greatly and may be spheroidal, cylindrical, or pulley-shaped, and it is suggested that in some cases the movement to which a joint is subject may determine or modify its shape so as to cause it to present divergencies in different individuals. The following are some of the chief forms of J. of the human frame: (a) Ball and socket, a spheroidal surface furnished by one bone works within a cup furnished by another; this will allow of motion of the former bone in any direction, its extent being dependent on the concavity of the cup. This is deep in the case of the hip joint and the extent of movement is sacrificed to obtain additional strength. The shoulder yields an example of an extended movement, for in this the glenoid cavity is shallow. (b) Gliding, in which the articular surfaces are flat. Examples are given in the tarsal J., the intercarpal J., and in the jaw J. in one of its movements. (c) Hinge, which has a nearly cylindrical head fitting into a corresponding socket, the movement being practically restricted to a direction perpendicular to the axis of the cylinder; examples occur in the case of the elbow, knee, ankle, and interphalangeal J., where suitable attachments or bony processes prevent a backward dislocation. (d) Double hinge or saddle, in which the articular surface of each bone is concave in one direction and convex in a direction at right angles to this, e.g. carpo-metacarpal J. of the thumb. The tarso-metatarsal of the big toe is not a saddle joint. (e) Condylloid; this is similar to the saddle and allows flexion, extension, and lateral movement and no rotation, but it is usually a weaker form of joint; examples, wrist and metacarpophalangeal. (f) Pivot, in which one bone furnishes a pivot on which another turns, or it turns itself on its own axis resting on another bone; an example of the former is given in the case of the atlanto-axial, in which the odontoid peg of the axis passes through a ring-like portion of the atlas; this arrangement allows of the head being turned or shaken through a considerable angle. The occipito-atlantal joint, used in nodding the head, is

of a different type. The case of the rotation of a bone on its own axis is illustrated by the radius, which has a shallow cup adjacent to the humerus and a concave surface at its lower end which articulates with the ulnar. In pronation (i.e. when the hand is turned so that the palm faces downwards), the radius turns on its own axis at its upper end and glides round the ulna at its lower.

**Diseases.** For diseases and injuries to the J. see under ARTHRITIS; DISLOCATIONS; RHEUMATISM; SPRAINS; SYNOVITIS. See H. GRAY, *Anatomy* (31st ed.), 1954.

**Joints**, in geology, are divisional planes in rocks. They never extend beyond the outermost crust, i.e. beyond the 'zone of fracture' as described by Van Hise, and vary in visible width from that of a hair to well-marked fissures, which in certain rocks may be widened by the solvent action of rain water, e.g. the grykes of the limestone regions of Yorks and the Lake Dist. They are most abundant in coherent rocks and absent in loosely packed material. The J. not only give passages for the circulation of underground water but also for highly concentrated mineral solutions; on occasion the minerals are deposited and many mineral veins, e.g. calcite barites, ores of lead, etc., follow joint planes. Regular joint systems in sedimentary rocks are generally the products of crustal stresses, and are often perpendicular to the bedding. J. in igneous rocks are frequently developed during cooling after solidification. In lava flows and in dikes and sills J. form at right angles to the cooling surfaces and may, as in the Giant's Causeway, have a hexagonal arrangement. In large igneous bodies, jointing tends to produce rectangular blocks of rock, a fact which is of importance in quarrying operations. See GEOLOGY.

**Jointure**, in law, is a term denoting the provision made for a wife out of her husband's property in the event of his predecease. Unlike dower, it is not limited to real estate, but now includes any provision made by a settlement for the support of the wife in the event of her surviving her husband. The doctrine of J. originated in the equity courts by way of substitution for dower in cases in which the latter had no application. The Statute of Uses originated the modern J., which usually takes the form of a yearly rent-charge or annuity created by a marriage settlement specifying the mode and time of its payment.

**Joinville**, or **Joinville** (formerly called **Dona Francisca**), city of Santa Catarina prov., S. Brazil, about 80 m. NNW. of Florianopolis. An industrial centre, founded by Ger. immigrants, it has textile, brewing, and distilling industries, and ships goods through the port São Francisco do Sul. Pop. 21,100.

**Joinville**, François Ferdinand Philippe Louis Marie d'Orléans, Prince de (1818-1900), Fr. sailor, third son of Louis Philippe, King of France, b. Neuilly. He entered the navy and became a lieutenant in 1836, first distinguishing himself at

the bombardment of San Juan de Ulloa (1838). In 1845 he successfully bombarded Tangier and occupied Mogador in Morocco. At the revolution of 1848 he sought refuge with the rest of his family in England. In 1870 he returned incognito to France, and fought at Orléans, but when his identity became known he was expelled by Gambetta. From 1871 to 1876 he was allowed to sit as member for Haute-Marne in the National Assembly.

**Joinville**, Jean, Sire de (1224-1317), Fr. historian, seneschal of Champagne. He accompanied Louis IX (St Louis) in his crusade of 1248-54, and while at Acre composed his *Credo* or confession of faith (1250). He began his *Vie de St Louis* in about 1280 (completed 1309). It is one of the finest medieval biographies, and a chief source of information about St Louis. There is an Eng. trans. by J. Hutton, 1868. See A. F. Delaborde, *Jean de Joinville*, 1894.

**Joinville**, Fr. tn in the dept of Haute-Marne, on the Marne. It has a château built by Claude de Guise (see under GUISE) in 1546, and here, in 1584, was signed an agreement between the League (q.v.) and the King of Spain. J. was the bp. of Jean de J., and of Mary of Guise (qq.v.). The tn has metallurgical industries. Pop. 3200.

**Joinville-le-Pont**, Fr. tn in the dept of Seine, on the Marne, a SE. suburb of Paris. It has a well-known school of physical culture, and film studios. Pop. 13,300.

**Jókai**, Mór (1825-1904), Hungarian novelist, b. Rév-Komárom. He qualified as an advocate, but, encouraged by the praise of the Hungarian Academy for his play *Zsidó fiú* (Jew Boy), went to Pest and embarked on a literary career. The pub. of his romance *Élőkőnapok*, 1845, marked an epoch in Hungarian literature, and firmly estab. its author's reputation. For his part in the revolution of 1848-9, and his support of Kossuth, he was proscribed by the gov., and his life was only saved by a stratagem of his wife, Róza Láborfalvy, the tragic actress. Among his romances, nearly all of which have been trans. into English, are *The Golden Age of Transylvania*, and its sequel, *The Turks in Hungary*, 1903, *Timar's Two Worlds*, 1888, perhaps his masterpiece, *Eyes like the Sea*, which won the Academy's prize in 1890, *Midst the Wild Carpathians*, 1894, with its sequel, *The Slaves of the Padishah*, 1903, *Pretty Michal*, 1897, *The Lion of Janina*, 1897, *A Christian, but a Roman*, 1900, *The Baur's Sons*, 1902, and *Tales from Jókai*, 1904, with a biography by R. N. Bain. See 'Maurice Jókai and the Historical Novel' in *Contemporary Review*, July 1904, and life by F. Zsigmond, Budapest, 1934.

**Joke**, see HUMOUR and JEST-BOOKS.

**Jokjokarta**, see JOGJAKARTA.

**Joliba River**, see NIGER.

**Joliet**, Louis (1645-1700), Fr.-Canadian explorer, b. Quebec. He was commissioned 1672 to explore the Mississippi, which he did, as also the Fox, Wisconsin, and Illinois R.s.

**Joliet**, city, co. seat of Will co., Illinois, U.S.A., on the Des Plaines R. and the Illinois Waterway, 37 m. SW. of Chicago. It is a railway and industrial centre, with coal mines and limestone quarries near by, and manufs. of wallpaper, steel products, chemicals, etc. It is the site of the state penitentiary. Pop. 51,600.

**Joliette**, or **Industry Village**, city in Quebec, Canada, 35 m. N. of Montreal. It is an agric. centre, and the industries include dyeing and finishing of textiles, iron goods, flour, and lumber. Pop. 16,870.

**Joliot-Curie, Irène** (1897- ), b. Paris, daughter of Marie and Pierre Curie (q.v.). Worked at the Institut de Radium until 1934. Awarded Nobel prize together with her husband, Jean Frédéric J.-C., in 1935 for the discovery of artificial radioactivity.

**Joliot-Curie, Jean Frédéric** (1900- ), Fr. physicist, b. Paris and studied there. He shared the Nobel prize for chem. in 1935 with his wife, Irène, for their discovery of artificial radioactivity. In 1937 he became prof. at the Collège de France. During the Second World War he was a leader of the Fr. resistance movement, but in 1950 he was dismissed from his post as director of the Fr. Commission of Atomic Energy on political grounds. His most important work has been in nuclear physics, with contributions to the discovery of the neutron, studies of the positron, and demonstration of the fact that more than one neutron is liberated in the fission of uranium 235.

**Jolly-boat**, small clinker-built boat, not so large as a cutter; it is usually hoisted at the stern of a vessel, and used for miscellaneous services. It has a bluff bow, and a wide transom, and is about 4 ft in beam and 12 ft in length.

**Jolo Archipelago**, see **SULU**.

**Jolson, Al** (real name Asa Yoelson) (1886-1950), Amer. actor and singer; his third wife was Ruby Keeler, the actress. B. in St Petersburg, he was the son of a rabbi, and emigrated to the U.S.A. with his family in 1893. His first legitimate theatre appearance was in 1899 at the Herald Square Theatre, New York, as one of the mob in *The Children of the Ghetto*; for sev. years he toured with a circus company and minstrel shows. He made his first big success in 1909, singing 'Mammy' in blackface. After a series of theatrical successes he began his film career by appearing in the first talking film, *The Jazz Singer*; other well-known films were *Wonder Bar* and *The Singing Fool*, in which he sang another famous song, 'Sonny Boy.' He appeared as a voice only in 2 films of his life, *The Jolson Story* and *Jolson Sings Again*.

**Jom Kippur**, see **DAY OF ATONEMENT**.

**Jomada I and II**, see **JUMADA**.

**Jomini, Antoine Henri, Baron** (1779-1869), general in the Fr. and afterwards in the Russian service, b. Payerne, Switzerland. He served in the campaign of Austerlitz, and became prin. aide-de-camp to Marshal Ney in 1805. His *Traité des grandes opérations militaires*,

1804-5, brought him to the notice of Napoleon, under whom he served at Jena and Eylau. He served through the Peninsular campaign (1808), but after the retreat from Moscow entered the Russian service, in which he took part in the Russo-Turkish war, especially at the siege of Varna (1828). Besides the *Traité*, he wrote *Principes de la stratégie*, 1818, *Précis de l'art de la guerre*, 1830, *Histoire de la Révolution*, 1806, and *Vie de Napoléon*, 1827. See F. Locmont, *Le Général Jomini*, 1861, and C. A. Sainte-Beuve, *Vie*, 1869.

**Jommelli, Niccolò** (1714-74), It. composer, b. Aversa, near Naples. In 1737 his first opera, *L'errore amoroso*, was successfully produced at Naples. In 1747 one of his finest operas, *Didone*, was produced at Naples and a revised version came out in 1749 at Vienna. In 1753 he was appointed chapel-master to the Duke of Württemberg at Stuttgart. His best-known works were the operas *Ifigenia in Aulide*, 1751, and *Armida abbandonata*, 1770, a *Misere*, and a *Requiem*. See life by H. Abert, 1908.



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AL JOLSON IN 'THE JAZZ SINGER'

**Jonah** (Gk *Jonas*), son of Amittai of Gath-hepher, lived under Jeroboam II (q.v.) and predicted his victories over the Syrians (2 Kings xiv. 25). All we know of him apart from this comes from the Book of J., which is now generally regarded (even by many Catholic scholars) as a prophetic parable, or didactic fiction. It is written in the form of historical narrative but placed among the prophetic books. The teachings of the book are: (1) the care of God for all mankind, not for Israelites only; (2) the mercy of God

towards those who repent. Incidentally the book contains one of the few references in scripture to God's loving solicitude for animals (Jonah iv. 11, cf. Matt. x. 29). J.'s sojourn for part of 3 days in the belly of a great fish (not specifically a whale) was used by Christ as a sign or type of His death and resurrection: no proof that He regarded the book as historical. He perhaps referred to a type present in scripture as we might refer to something said or done by Hamlet. Matt. xii. 40-2 is more difficult to explain away. If the Ninevites did not in fact repent at J.'s preaching, how can they rise up on the day of judgment to condemn those who have not repented at the Gospel of Christ?

**Jonas, Justus** (1493-1555), Ger. Protestant reformer, b. Nordhausen in Thuringia; was canon of St Severus and prof. of law at Erfurt (1518) and prof. of theology at Wittenburg (1521). An intimate friend of Luther, he accompanied him to the Diet of Worms and helped his trans. of the Bible. See T. I. Pressel, *Monograph*, 1863, and Meyer, *Festschrift des 400 Jährigen Geburtstag des Dr Justus Jonas*, 1893.

**Jónasson, Jóhannes** (úr Kötium) (1899-), Icelandic poet who has written many poems of austere beauty. As a rule he drops his patronymic (Jónasson) and instead writes as 'úr Kötium,' the name of the farm where he was b.

**Jonathan:** 1. Son of Gershom and descendant of Moses, chief of the priests at Dan (Judges xviii. 30). He provides an interesting hint at a priesthood derived from Moses, usually regarded as a prophet and not a priest. See under LEVITES. See also G. Buchanan Gray, *Sacrifice and Priesthood*.

2. Eldest son of Saul, a great and generous-hearted warrior whose devotion to David is the great classic of friendship (1 Sam. xviii-xx.). He was slain at Gilboa, where Saul also met his death. David's lament over Saul and J. (2 Sam. i. 17 ff.) is one of the great poems of all time.

3. Son of Mattathias and brother of Judas, whom he succeeded as leader of the Maccabean party. His statesmanship was greater than his ability as a warrior, and to it he owed the favourable terms which he made for the insurgents with Bacchides, the Syrian governor. He became high-priest in 153 BC, but was slain in captivity 11 years later.

**Jonathan, Brother**, personification of the U.S.A., corresponding to the Eng. 'John Bull'; the phrase has now been largely superseded by 'Uncle Sam.' The name is supposed to have come from Jonathan Trumbull (1710-85), governor of Connecticut and friend of Washington.

**Jones, Daniel** (1881-), Eng. phonetician, educ. at Radley, Univ. College School, and King's College, Cambridge. He studied law, and was called to the Bar in 1907, in which year he also became lecturer in phonetics at Univ. College, London. In 1921 he was appointed prof. of that subject in the Univ. of London. He has lectured at Paris, Geneva, Zürich,

Berlin, Göttingen, Marburg, Bonn, Cologne, Hamburg, Copenhagen, Stockholm, Upsala, Gothenburg, Rotterdam, and in the U.S.A. and India. He was secretary of the International Phonetic Association from 1928 to 1949, and assistant editor of its organ, *Le Maître phonétique*, 1907-40, and editor 1940-9; president of the Simplified Spelling Society, 1946, and of the International Phonetic Association. His works include *Cantonese Phonetic Reader*, with H. K. Woo, 1912, *Sechuana Reader*, with S. T. Platje, 1916, *English Pronouncing Dictionary*, 1917 (revised eds. 1924, 1939, 1945, 1956), *Colloquial Sinhalese Reader*, with H. S. Forere, 1919, *The Problem of a National Script for India*, 1942, *The Phoneme, its Nature and Use*, 1950, *The Pronunciation of English* (4th ed.), 1956, *Outline of English Phonetics* (8th ed.), 1956, *Phonetic Readings in English*, 1956, and *Cardinal Vowels*, 1956.

**Jones, Ebenezer** (1820-80), poet, b. Islington, London. The early death of his father cut short his education, and compelled him to become a clerk in a tea-merchant's office. His defective education is very apparent in his first vol. of poetry, *Studies of Sensation and Event*, 1843, which was very unfavourably received, although admired by Browning and Rossetti. His 3 remarkable poems, 'Winter Hymn to the Snow,' 'When the World is Burning,' and 'To Death,' were written when he was dying. See the ed. of *Studies of Sensation* by R. H. Shepherd, 1879, with a memoir by Sumner Jones; also T. M. Rees, *The Neglected Poet*, 1909.

**Jones, Sir Edward Burne**, see BURNE-JONES, SIR EDWARD.

**Jones, Emily Elizabeth Constance** (1848-1922), lecturer and schoolmistress; daughter of Dr J. Jones, of Langstone Court, Herefordshire. At Cambridge she took a first in the Moral Sciences Tripos, 1880. She lectured on moral science at Girton from 1884, becoming mistress 1905. Her works include trans. and ed. of Lotze's *Microcosmus* with E. Hamilton, 1885, *General Logic*, 1890, *Primer of Logic*, 1905, *Primer of Ethics*, 1911.

**Jones, Ernest** (1879-1958), psychoanalyst, b. Gowerston, Glamorgan, educ. at Cardiff and London, graduating M.B., 1901, and M.D., 1903. He soon began to specialise in neurology and psychiatry. After studying the Ger. literature on psycho-analysis he became a confirmed Freudian. J. was pro. of psychiatry at Toronto, 1909-11. He returned to London and became the leading psychoanalyst in the Eng.-speaking world. He founded the Brit. Analytical Society and the Institute of Psycho-analysis, and was director of the London Clinic for Psycho-analysis. In 1920 he founded the *International Journal of Psycho-analysis*, which he ed. until 1939. His prolific literary output included *Papers on Psycho-analysis* (5th ed.), 1948, and *Sigmund Freud: Life and Work* (3 vols.), 1953-6).

**Jones, Ernest Charles** (1819-69), Chartist, b. Berlin of Eng. parentage, and educ.

at Göttingen. In 1844 he was called to the Bar at the Middle Temple, but in 1845 joined the Chartist movement, and speedily became one of its most noted orators. His open advocacy of physical violence led to his imprisonment for sedition (1848-50). In prison he wrote *The Revolt of Hindustan*, an epic poem.

**Jones, Sir Harold Spencer** (1890- ), b. London. Astronomer Royal, 1933-55. From 1913 to 1923 he was chief assistant at the Royal Greenwich Observatory, and from 1923 to 1933 H.M. Astronomer at the Cape of Good Hope. He has pub. *General Astronomy*, 1922, *Worlds Without End*, 1935, *The Earth as a Clock*, 1939, *Life on Other Worlds*, 1939 (2nd ed., 1952), *The Royal Observatory, Greenwich*, 1943, and *John Couch Adams and the Discovery of Neptune*, 1947.

**Jones, Henry** (1831-99), author, b. London. He practised as a physician in London from 1852 to 1869. In 1862 under the pseudonym of 'Cavendish' he pub. *The Laws and Principles of Whist Explained by Cavendish*. He was a member of sev. whist clubs, including the 'Cavendish.' His work became the standard authority on the game. See W. P. Courtney, *English Whist and Whist Players*, 1894.

**Jones, Sir Henry** (1852-1922), philosopher; b. Llangernyw, N. Wales. First worked as a shoemaker. Graduated at Glasgow Univ. with first-class honours, 1878. Held the chairs of philosophy and political economy at Bangor Univ. College, 1884-91; and of logic and metaphysics at St Andrews Univ., 1891-4. From 1894 he was prof. of moral philosophy at Glasgow Univ. He was LL.D. of St Andrews, and D.Litt. of Wales. Works include *Browning as a Philosopher and Religious Teacher*, 1891, *The Philosophy of Lotze*, 1895, *Idealism as a Practical Creed*, 1909, and *The Working Faith of the Social Reformer*, 1910—the first and last of which gained him considerable popularity and influence. Elected fellow of Brit. Academy, 1904. Knighted, 1912.

**Jones, Henry Arthur** (1851-1929), playwright, b. Grandborough, Bucks, son of Silvanus J., tenant-farmer. He attended a grammar school at Winslow till he was 13. He was obliged to adopt a commercial career, but gained his first hearing as a dramatist with *Only Round the Corner*, produced at the Exeter Theatre in 1879, and *A Clerical Error*, 1879, produced in London. His melodrama, *The Silver King*, written with H. Herman, 1882, scored a great success. His *Saints and Sinners*, 1884, was the subject of controversy on account of its religious element. *The Middleman*, 1889, and *Judah*, 1890, mark an advance in technical skill. *The Dancing Girl*, 1891 (revised as *The Dancing Mistress* in 1913), *The Crusaders*, 1891, *The Bauble Shop*, 1893, *The Templer*, 1893, *The Masqueraders*, 1894, *The Case of Rebellious Susan*, 1895, *Michael and his Lost Angel*, 1896, *The Rogue's Comedy*, 1896, *The Physician*, 1897—all these for the most part deal more nearly with the problems of everyday life. His poetical

drama, *The Templer*, 1893, was not a success; but with *The Triumph of the Philistines*, 1895, he began a series of successful plays which include *The Liars*, 1897, and *The Heroic Stubbs*, 1906. Later 'serious' plays are *Carnac Sahib* and *The Manœuvres of Jane*, 1899, *The Lackey's Carnival*, 1900, *Mrs Dane's Defence*, 1900, *Chance, the Idol and The Princess's Nose*, 1902, *Whitewashing Julia*, 1903, *Joseph Entangled and The Chevalier*, 1904, *The Hypocrites*, 1906, *Dolly Reforming Herself*, 1908, *The Knife*, 1909, and *The Ogre*, 1911. A uniform ed. of his plays began to be issued in 1891 and his views on dramatic art are given in *The Renaissance of the English Drama*, 1895. See his *Life and Letters*, by J. D. Jones, 1930, and R. A. Cordell, *Henry Arthur Jones and the Modern Drama*, 1932.

**Jones, Inigo** (1573-1652), architect, b. London. Sometimes called the 'English Palladio,' for J. was the first to introduce pure Renaissance architecture, adapting it. Ideas, especially those of Palladio, to



INIGO JONES

Eng. requirements. Little is known of his life, beyond the fact that he appears to have travelled a great deal, particularly in Italy. It is possible that he was sent to Italy to study, by Wm Herbert, 3rd Earl of Pembroke. At any rate, he was in Venice c. 1603 when he was sent for by the King of Denmark. A quite unfounded legend suggests that he designed the palaces of Rosenborg and Frederiksborg. He accompanied Anne of Denmark to the Eng. court in 1604, and there designed the scenery for Ben Jonson's *Masque of Blackness*, given at Whitehall in 1605. In 1615, after another visit to Italy, J. became surveyor-general of the royal buildings, and in 1617 he began the Queen's House at Greenwich. In 1619 he was commissioned to design additions to Whitehall, including the banquetting-house. He held the same offices under Charles I. The Civil war interfered with his activities, and his loyalty to the Stuarts caused him to be fined twice, so that other examples of his work are not numerous. Besides the 2 mentioned, his only buildings still surviving are the



chapel of Marlborough House, London (1623-6), and part of Wilton House, Wilts, including the 'Double Cube Room' (1649-52); but a good example of his work is to be found in St Paul's, Covent Garden, burnt down in 1795, but re-erected in the same style; and he may have designed Lindsey House in Lincoln's Inn Fields, c. 1640. See biography by J. A. Gutch, 1928.

**Jones, John** (c. 1765-1827), Unitarian minister, b. Carmarthenshire. In 1795 he was appointed pastor at Plymouth Dock, and subsequently at Halifax, Yorks, and in London. The introduction of Gk-Eng. lexicons is due to him, Greek having hitherto been studied only through Lat. books. His *Greek and English Lexicon* was pub. in 1823. He pub. *Illustrations of the Four Gospels*, 1808.

**Jones, John Paul** (1747-92), commander and the first great hero in the Amer. Navy, b. Kirkbean, Kirkcudbright, Scotland. In 1764 he shipped as mate on a slaver and made sev. voyages to America. He assumed the name of J. when he settled in Virginia. When war broke out between England and America in 1775, J. was given a commission in the Amer. Navy. In 1778 he was sent on a mission to Brest, and during a cruise round the Brit. coasts succeeded in capturing the *Drake*, and surprising the garrison of Whitehaven. In 1779 he took command in one of the most famous sea-fights in hist. He had command of 3 ships led by the *Bonhomme Richard* off Flamborough Head, England. The *Serapis* surrendered when sinking. J.'s ship sank the next day. In 1788 he joined the Russian Navy, taking part in the battle of Liman (1788), but left in 1789. He d. in Paris. His body was then escorted by a fleet of Amer. warships to Annapolis. See J. Sherburn, *Life of Paul Jones*, 1825; Janette Taylor, *Collections*, 1830; life by C. Townshend Brady in Great Commanders Series, 1900; Winston Churchill's novel, *Richard Carvel*, 1903.

**Jones, Thomas Gwynne** (1871-1949), Welsh poet, b. Gwyndy Uchaf, Denbighshire, son of a farmer. He was on the staff of a Welsh newspaper *Genedl Gymreig* in Caernarvon when he was appointed to the staff of the newly estab. National Library of Wales. In 1913 he was appointed lecturer in Welsh literature at the Univ. College of Wales, Aberystwyth, and in 1918 became prof. His first book of verse was pub. when he was little more than a boy. His second vol., *Gwlad y Gan*, appeared in 1902, after he had already pub. 2 Welsh novels, and it was in that year that he won the National Eisteddfod chair at Bangor with his *Ymadawiad Arthur*, a poem which heralded a new era in Welsh literature. He won the national chair again in 1909, with his *Gwlad y Bryniau*, and from then his place in Welsh literature was assured. In 1912 he wrote a biography of Emrys ap Iwan, the preacher and linguist, and a life of Thomas Gee, his first editor (1913); this book is in effect a hist. of Welsh politics. In his verse J. was a constant experimenter and

innovator, working, however, on the foundation of the classical tradition. He also wrote some vols. of essays, sev. plays, and a book in English on Welsh folklore. Among his other works are a critical ed. of the poems of Tudor Aled, 1926, trans. of *Faust* and *Macbeth*, an anthology of Irish poems trans. into Welsh, and a version of *Y Bardd Cwsc* in English.

**Jones, William** (1675-1749), Brit. mathematician to whom is attributed the first use of the symbol  $\pi$  (see  $\Pi$ ) to denote the circumference/diameter ratio. He was a friend of Isaac Newton (q.v.), and ed. Newton's mathematical papers, 1711. F.R.S., 1712. For many years he was employed as tutor by the earls of Macclesfield at Shirburn Castle.

**Jones, Sir William** (1746-94), orientalist, b. London. He was that rare combination, a great scholar both in oriental fields (Hindu, Arabic, and Persian languages and literatures) and in legal studies. In 1783 he was appointed to a judgeship in Bengal, which he held till his death; he devoted his leisure to the study of Hindu law, the results of which were pub. under the title *Digest of Hindu Laws*, 1800. His numerous works include *Traité sur la poésie orientale*, 1770, *Dissertation sur la Littérature orientale*, 1771, *Grammar of the Persian Language*, 1774, *Mohammedan Law of Inheritance*, 1792; he ed. *Mānavadharmaśāstra* on the codex of Manu, 1794, dealing with the 'Institutes of Hindu Law on the Ordinances of Manu.' He also ed. *Sakuntalā* (with a celebrated introduction on the Indian theatre), 1789, as well as *Rhusamhara*, 1792, and sev. other works. His collected works were pub. in 1799 (6 vols.) and 1807 (13 vols.).

**Jonesboro**, co. seat of Craighead co., Arkansas, U.S.A., 60 m. NNW. of Memphis; it has manufs. of leather, cotton-oil, wood products, shoes, flour, hosiery, and bricks. It is a distribution centre for a farm area (cotton, corn, rice, fruit, livestock, poultry). Pop. 16,310.

**Jongkind, Johann Barthold** (1819-91), Dutch landscape painter and engraver, b. Lattrop. A pupil of Isabey, he worked much in France, and in his study of atmospheric effects was one of the pioneers of Impressionism (q.v.).

**Jongleurs, Jugglers, or Jocolatores** (Lat. *jocolator*, a jester) were the descendants in medieval times of the Rom. mimes, the strolling players who were all that remained in the 4th cent. of the once great Rom. theatre. They appeared at festivals, gave their entertainment, and vanished again into obscurity; but they alone carried down such traditions as remained of the anct pagan drama, and ultimately combined them with the new religious drama. In N. France they very early adapted the religious drama for secular purposes, and came to be confused with the *trouvères*, who corresponded with the 'minstrels' of Saxon times. But the *trouvères* or minstrels were a superior class of entertainers; they were generally attached to great households to sing of war and noble deeds, whereas the J. were vagabonds

strolling from vil. to vil. to exhibit their juggling and pantomimic tricks. The requirements of a jongleur are quoted by Sismondi: 'He must know how to compose and rhyme well, and how to compose a *jeu parti*. He must be able to play on the tambourine and cymbals; to throw and catch little balls on the point of a knife; to imitate the songs of birds; to play tricks with the baskets; to exhibit attacks of castles, and leaps through four hoops; to play on the citole and the mandore; to handle the clavichord and the guitar; to string the wheel with seventeen chords; to play on the harp; and to adapt a gigue so as to enliven a psalmery'—a combination, in fact, of the ancient minstrel and the modern conjuror (q.v.) and variety entertainer. They lived and travelled after the manner of present-day gipsies in companies, and, according to Lacroix, under 'kings' of their own, but whether they were largely composed of the gipsy element is uncertain. See L. Sismondi, *Historical View of the Literature of the South of Europe* (trans. P. Roscoe, 2nd ed.), 1846; P. Lacroix, *Manners, etc., of the Middle Ages*, 1876.

Jönköping, tn of Sweden, the cap. of the prov. (län) of the same name, 170 m. SW. of Stockholm and 80 m. E. of Gothenburg, at the S. end of Lake Vättern. It has a large safety-match factory, a good shipping trade, and manufs. of snuff and cigars, paper, carpets and damask, dye and asphalt. It has played an important part in Scandinavian hist., and was the scene of the conclusion of peace between Sweden and Denmark in 1809. Area of prov. 4447 sq. m. Pop. (prov.) 277,949; (tn) 48,488.

Jouquiére, adjoining tn to Kénogami, 8 m. E. of Chicoutimi, in Quebec, Canada. Prin. industry, pulp and paper. Pop. 25,400.

Jonquill, popular name for *Narcissus jonquilla*, a well-known and beautiful species of Amaryllidaceae largely cultivated in Britain. Sev. of the flowers are borne on one stem; in colour they are yellow and the corona is well developed.

Jonson, Ben (c. 1573–1637), poet and dramatist, b. Westminster, posthumous son of a clergyman of Scottish descent. He was educ. at Westminster School under Wm Camden. After working for some time for his stepfather, a bricklayer, he went abroad to join the Eng. Army in Flanders. He returned in 1592, and soon afterwards took to the stage. He joined the Admiral's Company, and not only took part in the performances, but also acted as hack-dramatist. Killing his challenger in a duel in 1593 all but cost him his life; he was branded on the thumb, imprisoned, and his goods confiscated. In prison he became a Catholic, but 12 years later reverted to Protestantism. A quarrel with the manager, Henslowe, in the same year resulted in his offering his first known comedy, *Every Man in His Humour*, to the rival company, the Lord Chamberlain's Servants, by whom it was produced at the Globe Theatre, with Shakespeare in the cast. The play was successful, and J. was at once enrolled

among the list of the leading dramatists. His next most important plays were *Every Man out of his Humour*, 1599, *Cynthia's Revels*, 1600, *The Poetaster*, 1601, and *Sejanus* (a tragedy), 1603. These were followed by *Volpone*, or *The Foze*, 1605, *Epicoene*, or *The Silent Woman*, 1609, and *The Alchemist*, 1610, his most elaborate and masterly play. In all he is credited with 18 plays, although there were probably many more of which he was author or part-author. In addition to these he wrote sev. masques, numerous poems, and some works in prose. In 1619 he received the laureateship and a small pension from the king. J. acquired a position to which scarcely any man of letters before him had attained. 'His conversation,' Clarendon has recorded, 'was very good and with men of most note.' He was on friendly terms with Bacon, Selden, Camden, Donne, and Fletcher, and certainly he knew Shakespeare. With Suckling, Herrick, and others he founded the Apollo Club at the Devil Tavern. He was also a frequenter of the famous Mermaid Tavern (q.v.). He d. in poverty, but was buried in Westminster Abbey, his tombstone being inscribed with the words 'O rare Ben Jonson.' As a dramatist, he is second only to Shakespeare, with the possible exception of Marlowe. As a satirist he was magnificent, as a humorist unrivalled except by the master-dramatist himself. His poetry was exquisite, and he gave to everything he wrote the hall-mark of his vivid personality. He wrote some 35 masques in the production of which Inigo Jones provided the mechanisms. His best work was his lyrics, notably 'Drink to me only with thine eyes.'

His collected works were ed. by W. Gifford, 1816, reissued in 1875 with corrections by F. Cunningham, and by C. N. Herford and P. Simpson, 1925–52. See lives by W. Gifford, 1816; J. A. Symonds, 1886; G. Smith, 1919; J. Palmer, 1934. See also A. C. Swinburne, *Shirdy of Ben Jonson*, 1889; M. Castelain, *Ben Jonson: l'homme et l'œuvre*, 1907; G. B. Johnston, *Ben Jonson, Poet*, 1945.

Jonsong, pass in the Himalaya, at an altitude of over 21,000 ft. in the ridge connecting Kangchenjunga with Nepal.

Jónsson, Agnar K. (1909– ), scholar and diplomatist, Icelandic minister in London. He has pub. a biographical dictionary of Icelandic lawyers.

Jónsson, Arngrímur (1568–1648), Icelandic scholar and church magnate whose works, mostly in Latin, on Icelandic and N. hist. are still of fundamental importance, as he had access to sources that no longer exist. Chief among his works pub. in his lifetime are *Brevis Commentarius de Islandia*, 1593, *Crymogaea*, 1609, and *Specimen Islandiae*, 1643, while others have been preserved in MS. only; but the entire corpus is now being pub. in the *Bibliotheca Arnarnagana*, vols. ix–xii, ed. by J. Benediktsson.

Jónsson, Björn (1846–1912), Icelandic newspaper editor and a national leader in Iceland's struggle for political independence; a man of great endowments,

immense strength of character, and high ideals, he had a profound influence on the affairs and the progress of his country.

**Jónsson, Einar** (1874-1954), Icelandic sculptor of great originality and force. His sculpture gallery in Reykjavík was erected by the Icelandic Gov., and a vol. of reproductions of all his major works was pub. in 1954.

**Jónsson, Finnur** (1704-80), Icelandic bishop and church historian. His *Historia ecclesiastica Islandiæ* (4 vols.) is a standard work. See P. E. Ólason, *Íslenskar æviskrár*.

**Jónsson, Finnur** (1858-1934), Icelandic philologist, prof. of Old Icelandic in the univ. of Copenhagen and author of the standard hist. of Old Norwegian and Old Icelandic literature (in Danish, 3 vols.) and many other learned works. See his autobiography (in Danish and Icelandic) and H. Hermannsson's *Catalogues of the Fiske Icelandic Collection*.

**Jónsson, Hjalmar** (1796-1875), Icelandic poet whose poetry reflects a lifelong struggle with poverty. He was by nature a proud man and fully cognisant of his vast intellectual superiority. After his death he became a national hero and a monument has been erected to his memory. He is commonly referred to as Bólu-Hjalmar (Hjalmar of Bóla, the farm where he lived).

**Jónsson, Kristján** (1842-89), Icelandic poet of great ability but whose philosophy of life was exceptionally pessimistic. This does not appear to have affected his daily behaviour, for he won the hearts of all who came into contact with him. Though he d. at the age of 26 he holds an unassailable position as one of the leading poets of the greatest poetic age in the literature of Iceland.

**Jónsson, Thorsteinn** (1885- ), Icelandic short story writer, by many regarded as the foremost living author in that field. He writes under the pseudonym of Thórir Bergsson.

**Jonzac**, Fr. tn. cap. of an arron., in the dept. of Charente-Maritime, on the Seugne. Brandy and wines are made. Pop. 3800.

**Joplin**, city in Missouri, U.S.A., 140 m. S. of Kansas City, at W. of Ozark plateau and near N.E. corner of Oklahoma. It is a railway centre in an agric., zinc and lead mining, and limestone quarrying area, with stockyards and meat-packing and mineral-processing plants. It manufs. leather goods, metal and food products, sewer pipe, and explosives. Pop. 38,700.

**Joppa**, ancient name of Jaffa (q.v.).

**Jordaens, Jakob** (1593-1678), Flem. painter, b. Antwerp. He studied under Van Oort and Rubens, being indebted to the latter for most of his artistic knowledge, and subsequently being employed by him. After Rubens's death, J. was recognised as leader of the Antwerp school. His colouring was rich and harmonious, and he excelled especially in depicting humorous scenes. He also painted allegorical subjects and religious pictures, the best known among the latter being 'The Last Supper,' 'The Martyrdom

of St Apollonia,' 'The Adoration of the Shepherds,' and 'Christ in the Midst of the Doctors.' See P. Buschmann, *Jordaens et son Œuvre*, 1905, and a life by E. Herdies, 1920.

**Jordan, Dorothea** (1762-1816), actress, made her theatrical début at Dublin in 1777 as Phoebe in *As You Like It*. She acquired much experience in the provs., and in 1785 she first appeared at Drury Lane, where she acted until her retirement from the stage 21 years later. As a comedienne she won many laurels. She had more than one intrigue before 1790, when she became mistress of the Duke of Clarence (afterwards William IV). She bore him many children, who took the name Fitzclarence, and became well known in society; the liaison lasted until 1811. Four years later she went abroad, where she d. in 1816 at St Cloud. See biography by J. Roaden, 1831.

**Jordan, Sir Joseph** (1603-85), Eng. admiral, who fought in the Dutch wars and was in command at the victory of Solobay in 1672, serving as vice-admiral of the Blue.

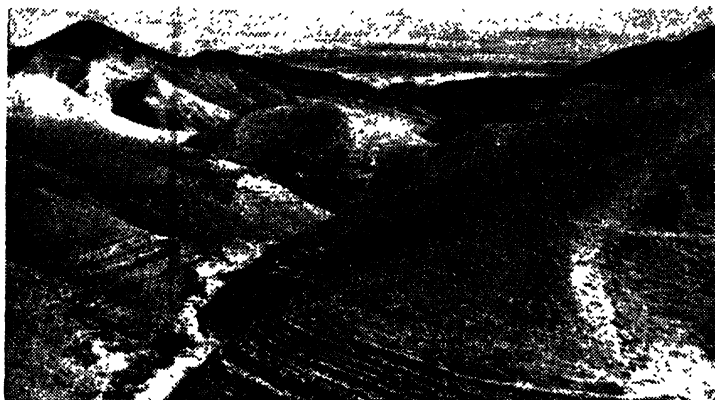
**Jordan, Thomas** (c. 1612-85), poet and pamphleteer, b. London. He began life as an actor at the Red Bull Theatre, Clerkenwell, publishing his first vol. of poems, *Poetical Varieties*, in 1637. In 1671 he was appointed laureate to the corporation of London, and composed every year a panegyric on the Lord Mayor, and arranged the pageants, celebrating them in verse. He wrote many works, some of which are in the Brit. Museum.

**Jordan**, most important riv. of Palestine; it runs from N. to S., through a great valley some 160 m. long, and at times as much as 15 m. broad. The highest source is 1700 ft above sea level on the W. of Mt Hermon, near to the vil. of Hasbeya; under the name of the Hasbany it flows to join the Leddan and the Bānīasi, which have already united into one stream. Thence the J. flows S. into Lake Huleh and the Lake of Tiberias (Sea of Gallilee), where it is already more than 600 ft below sea level. The most important feature in its course between the Sea of Galilee and the Dead Sea is the rocky cleft known as the Ghor, some 65 m. long and from 3 to 12 m. in breadth, through which it passes. It then falls into the Dead Sea at a point 1292 ft below the level of the Mediterranean. The course of the J. is extremely tortuous, its total length being about 160 m. Processions to the J. take place from Jericho at the Orthodox Epiphany and Easter, when white-shrouded pilgrims bathe in the riv.—the bathing-place of the pilgrim is supposed to be the scene of the baptism of Christ, the miraculous div. of the waters by the cloak of Elijah, and the legend of St Christopher, who carried the Infant Christ across the river. Owing to differences between Israel and the Arab states, schemes to utilise the J. waters for power and irrigation have not, as yet, been put into operation. See also DEAD SEA; GALILEE; PALESTINE. (See illustration, p. 366.)

**Jordan, Kingdom of** (the Hashemite

Kingdom of Jordan), Arab state, bounded by Israel on the W., Saudi Arabia on the S., Iraq on the E., and Syria on the N. Area c. 37,000 sq. m.; pop (1955) 1,400,000, including c. 400,000 displaced Palestinians and c. 50,000 Christians. The cap. is Amman (pop. 175,000), and other tns include Jerusalem (Arab sector), Nablus, Petra, Jerash, and Akaba (the only port). Of the 7 provs., 2 are W. of the R. J. By the 1952 constitution, J. is a constitutional monarchy with a Parliament consisting of an upper chamber of 20 members nominated by the king and an elected lower house of 40 members, the representatives

2 months later the kingdom of J. was proclaimed. The annexation of the occupied Palestine ter. followed in April 1950, and Abdullah refused to allow the internationalisation of the Jerusalem sector held by him. This drew him closer to Israel. The annexed part of Palestine includes the dists. of Jonin, Tulkarm, Nablus, Ramallah, Jericho, Arab Jerusalem, Bethlehem, and Hebron. On the assassination of Abdullah on 20 July 1951 he was succeeded by his eldest son Talal, who was deposed on 11 Aug. 1952 on account of mental ill health, in favour of his son Hussein.



E.N.A.

## THE VALLEY OF THE JORDAN

being divided equally between Arab Palestine and Transjordan. J. is a member of the U.N. and of the Arab League (q.v.). Most of the land is desert, unsuitable for agriculture, but there is generally an exportable surplus of vegetables and fruit. There is no large-scale industry. The heavy adverse trading balance is covered by foreign subsidies (see below), and the U.N. contributes towards the relief of Palestinian refugees. (For earlier hist. see TRANSJORDAN.)

The kingdom of J. is an enlargement of the kingdom of Transjordan, resulting from the conquest of part of Arab Palestine (c. 2000 sq. m.) by King Abdullah (q.v.) in 1948. This completely changed the character of the country, the nomadic Bedouin element of Transjordan being now dominated by the more cultured Palestinians, who consist of c. 500,000 settled inhab. and c. 400,000 displaced from Israel. In April 1949 Abdullah admitted 3 Palestinians to his Cabinet and

After the death of Abdullah, J. policy fell mainly into the hands of the Palestinian element. Brit. influence was drastically reduced and closer ties estab. with Egypt and Syria. In 1955 J. refused to agree to the revision of the 1948 treaty with Great Britain or to join the Brit.-inspired Bagdad Pact (q.v.). Glubb (q.v.), the Brit. commander of the Arab Legion, was dismissed in Mar. 1956, together with other Brit. officers. The anti-Brit. gov. elected in 1956 considerably strengthened J.'s ties with Egypt, and after the Suez crisis of 1956 (see SUEZ CANAL) such Brit. influence as still remained had virtually disappeared. On 25 Oct., 4 days before the Israeli attack on Egypt which precipitated the Suez crisis, J., Egypt, and Syria signed an agreement establishing a joint military command under Egyptian leadership to meet any emergency. In Jan. 1957 Egypt, Syria, and Saudi Arabia agreed to pay J. the equivalent of the ann. Brit. subsidy received under the 1948

Anglo-J. treaty, which was officially terminated on 4 Feb. 1957. In April King Hussein asked for the resignation of the J. Gov. and a coalition was formed. Following a general strike in Amman and anti-Amer. demonstrations the J. Cabinet resigned, and a new Cabinet was appointed by King Hussein, who dissolved the political parties in J. and imposed martial law. Under the Anglo-J. treaty Brit. Army units had been stationed in J., and there were also sov. R.A.F. bases, at

of the Arab Federation is King Feisal of Iraq; King Hussein of J. is his deputy and both retain constitutional authority in their respective kingdoms.

**Jordan** (fl. AD. 550), historian and ecclesiastic of the 6th cent. Originally a notary at the Ostrogoth court in Italy, he became a monk, and finally Bishop of Croton, though the last appointment has been denied by some. His prin. work is *De Getarum Origine et Rebus Gestis*, the only source of information of the hist. of



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PETRA: THE TREASURY

Amman, Mafrek, and Akaba: all military and air bases had been handed back to J. by the end of May. After the death of Abdullah, relations between J. and Israel deteriorated, and many border incidents have taken place, Jordanian infiltrations into Israel being countered by occasional savage reprisal raids into J. Following on the creation of the United Arab Rep. (q.v.) on 14 Feb. 1958 the kings of J. and Iraq (q.v.) signed an agreement uniting their kingdoms in the 'Arab Federation.' The agreement laid down that the federation was to be open to other Arab states, and foreign policy, finance, education, diplomatic representation, and the 2 armies were to be unified within 3 months. Executive and legislative bodies were to be set up with members from each partner-country. A single flag was to be the flag both of the federation and of the participants. The cap. of the federation was to alternate between Bagdad and Amman every 6 months. The first head



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CEREMONY OF THE WASHING OF THE  
FEET

Held on Maundy Thursday in the  
Armenian cathedral of St James.

the Goths. He also wrote *Summa temporum*, a hist. of Rome to 552. There is an ed. of both works by T. Mommsen, 1822. J. was a good compiler, but displayed little original thought.

**Jorga, Nicolas**, see IORGA, NECULAI.  
**Jørgensen, Jens Johannes** (1886- ), Dan. author, b. Svendborg. In 1896 he became converted to Rom. Catholicism, and later settled in Assisi. His philosophical and religious works are of high literary merit. He is well known also for his travel descriptions: *Reisebogen*, 1895; *Romersk Mosaik*, 1901; *Pilgrimsbogen*, 1903; and for his biographical studies: *Den hellige Frans af Assisi*, 1907; *Den hellige Katharina af Siena*, 1915; *Goethebogen*, 1913. In Denmark he has gained great fame as a lyric poet. His autobiography was pub. in English, 1928-9. See E. Frederiksen, *J. Jørgensens Ungdom*, 1943.

**Jortin, John** (1698-1770), Eng. church historian and critic, b. London of Huguenot parentage. He was educ. at Charter-

house and Jesus College, Cambridge, graduating in 1719. After sev. preferments, in 1749 he was appointed Boyle lecturer. Subsequently he became vicar of Kensington, a prebendary of St Paul's, and archdeacon of London. Amongst his prin. works are *Miscellaneous Observations upon Authors, Ancient and Modern*, 1731-2, *Remarks on Ecclesiastical History*, 1767-1773, *The Life of Erasmus*, 1758-60, *Lusus Poetici* (an early vol. of Lat. verse), *Sermons and Charges*, 1781, etc. See J. Disney, *Memoirs of the Life and Writings of John Jortin*, 1792.

**Jorullo**, or **Xorullo**, volcano of Michoacán, central Mexico, which came into existence in Sept. 1759, when a great eruption occurred. Height 4315 ft.

**Josaphat**, see **BARLAAM AND JOSAPHAT. Josef** (Ger. **Josefstadt**), Czechoslovak tn in the region of Hradec Králové (q.v.). It was once a strong fortress. Pop. 3700. **Josefstadt**, see **JOSEFOV**.

**Joseph**: 1. Eldest son of Jacob and Rachel, and brother of Benjamin, was sold into Egypt by his jealous brethren, sons of other wives. Here he rose to supreme power, saved Egypt from famine, and settled his father and brethren after a painful trial and reconciliation. He was buried in Shechem. His sons Ephraim and Manasse produced the two J. tribes. No trace of J. and of the Israelite sojourn in Egypt has yet been found in Egyptian records; but it seems likely that it took place under the Hyksos, Asiatics who conquered Palestine and Egypt c. 1730-1380 BC. Of the historical fact of the sojourn in Egypt and subsequent exodus, there can be no question; and the J. story (Gen. xii-l) is full of authentic and contemporary Egyptian colouring. See A. S. E. Yahuda, *Accuracy of the Bible*, 1934, and *Language of the Pentateuch*, 1933.

2. St, husband of the Virgin Mary, carpenter of Nazareth, and legal foster-father of Jesus. It is made clear in the Gospels that he was not the father of Jesus in the physical sense, but his foster-father and guardian. The Church has, moreover, always held that he was never more than a guardian to Mary, who remained over-Virgin. He last appears in the Gospel hist. in connection with the going up of Jesus to the Temple at the age of 12. From the fact that he is not mentioned in connection with our Lord's ministry, it has been gathered that he had d. before this began. The ant. tradition is that J. was an old man (i.e. over 40) when he married Mary. Besides the feast of his *Transitus* on 19 Mar. he is honoured on the third Wednesday after Easter (Solemnity of St J.).

3. St J. of Arimathea, a rich Israelite of high rank, and possibly a member of the Sanhedrin or Great Council, who was in secret a disciple of Jesus. After the Crucifixion, he went boldly to Pilate and obtained leave to take down the sacred body which he interred in his own tomb, Feast, 17 Mar.

4. St J. called Barsabas, surnamed Justus, chosen as one of 2 candidates for the place in the apostolic band left vacant by Judas

Iscaiot. His name does not recur in the N.T. His feast day is 20 July.

**Joseph**, King of Spain and Naples, see **BONAPARTE, Joseph Bonaparte**.

**Joseph I** (1678-1711), Holy Rom. emperor, son of Leopold I, b. Vienna. In 1687 he was crowned King of Hungary; in 1690 King of the Romans, succeeding his father as emperor and ruler of the Hapsburg dominions in 1705. Supported by England, Holland, and Savoy, he warred successfully against Louis XIV (Sp. Succession War).

**Joseph II** (1741-90), Holy Rom. emperor, son of Francis I and Maria Theresa, b. Vienna. He became King of the Romans in 1764, succeeding his father as emperor in 1765. In 1772 he signed a treaty with Russia and Prussia dividing Poland among the three. On his mother's death (1780) he came into possession of Hungary and all the hereditary dominions of Austria. In the Turkish war (1788-9) his general, Loudon, won sev. victories, but the result was unsuccessful. J. made many reforms, regulating the taxes and allowing a considerable measure of religious toleration, but he proved over-zealous and over-anxious to centralise. His reign ended with serious revolts in Belgium and Hungary. See life by E. Benedict, 1936.

**Joseph of Exeter** (d. c. 1210), Eng. Lat. poet, author of a lost epic on the deeds of Richard I. His *magnum opus* is the *De Bello Troiano*, in which the influence of Lucan is apparent. J. accompanied Archbishop Baldwin of Canterbury on the third crusade.

**Josephine, Marie Rose** (1763-1814), empress of the French and first wife of Napoleon I, b. Trois Islets, Martinique. Her father being captain of the port of St Pierre. Her maiden name was Tascher de la Pagerie, and she first married the Vicomte de Beauharnais (1777), to whom she bore Eugene, later Viceroy of Italy, and a daughter Hortense, afterwards Queen of Holland and mother of the Emperor Napoleon III. Beauharnais was guillotined during the Reign of Terror (1794), and 2 years later his widow married Napoleon. She at first exercised great influence over the emperor, and at the Luxembourg and the Tuileries attracted around her the most brilliant society of France; but the union proved childless and increasingly unhappy, and in 1810 the marriage was dissolved. Soon afterwards Napoleon married Marie Louise of Austria. The divorce has gained J. a good deal of sympathy, but there were considerable faults on both sides. She later lived in retirement at Malmaison until her death. See lives by C. S. Forrester, 1925, and R. M. Wilson, 1930. See also W. Geer, *Napoleon and Josephine*, 1925, and D. Creston, *In Search of Two Characters*, 1945, 1947.

**Josephus Flavius** (AD 38 to after 100), celebrated Jewish historian (the 'Greclian Livy') and general, of both royal and sacerdotal lineage. He appears to have joined the sect of the Essenes, and spent 3 years with a hermit, Banos, in the desert, but in 56 he became a Pharisee.

In 64 he visited Rome as deputy to Nero to procure the release of some Jewish priests, and succeeded through the influence of Poppaea. On his return he opposed the revolutionary spirit of his countrymen, but became Governor of the 2 Galilees at the outbreak of war with Rome. In 67 he bravely defended Jotapata against the Romans under Vespasian, but the latter was finally victorious. J. was saved for predicting that Vespasian would soon wear the imperial purple. He was kept for a time in honourable confinement, and then accompanied the Rom. Army at the destruction of Jerusalem by Titus (70). His influence saved the lives of many of his friends. Vespasian made him a full Rom. citizen, and he adopted the name 'Flavius' as a compliment to the emperor. His chief works are *History of the Jewish War* (from 170 BC to his own times), *Ioudaïkē Archaiologia* (from the creation to AD 66); autobiography (Eng. trans. by Traill, 1862); and a treatise, *Against Apion of Alexandria*. See ed. of H. St. J. Thackeray and R. Marcus (1926—in progress). See M. Friedländer, *Geschichte der jüdischen Apologetik*, 1903; R. Laqueur, *Der jüdische Historiker Josephus*, 1920; H. St. John Thackeray, *Josephus*, 1929; F. Jackson, *Josephus and the Jews*, 1930.

Joshkar-Ola, see YOSHKAR-OLA.

Joshua, son of Nun, in youth an attendant on Moses, became leader of the Israelites in the conquest of Canaan. Evidence supporting the biblical account of his taking of Jericho has been found by excavation: the walls fell outwards, probably by a providential earthquake. He was of the tribe of Ephraim, and at first was called Hosea (Num. xiii. 8 and 16). He d. at the age of 110, and was buried at Timnath Serah. See *Book of Joshua*; C. F. Burney, *Israel's Settlement in Canaan*, 1921; John and J. B. E. Garstang, *Story of Jericho*, 1940; *Catholic Commentary on Holy Scripture*, 1953.

Joshua, The Book of, first of the books of the 'Former' Prophets. It tells of the invasion and conquest of Canaan (chs. i.-xii.) and the div. of the land among the tribes (chs. xiii.-xxiv.). The book ends with 2 addresses delivered by Joshua a little before his death. See also HEXATEUCH.

Joshua Tree, *Yucca brevifolia*, which attains to a height of 35 ft., one of a genus containing about 30 species, occurring most often in Mexico and Central America. It is fertilised entirely through the agency of the yucca-moth. This moth, called the Pronuba moth, was first observed 60 years ago to scrape the pollen off a yucca flower, roll it up into a ball, and fly off to another yucca plant, which she impregnates with 4 or 5 eggs, placing the ball of food firmly in the pistil. Her larvae feed on the seeds of the yucca plant, 20 seeds to 1 larva; so that there remain of the plant's 200 seeds about 100, from which the plant can be perpetuated. Only by this means can a yucca be sure of getting its seed. The J. T. is not much known in Great Britain, but other species of yucca, the *F. glori-*

*osa*, for example, are hardy enough to grow out of doors in the Brit. winter, and flower at rare intervals, with blossoms of singular beauty, white, creamy, tinged with green, and bell-shaped.

Josiah (c. 639-609 BC), son of Amon, King of Judah, came to the throne at the age of 8; but nothing is told us until the eighteenth year of his reign, when occurred the finding of the Book of the Law (see DEUTERONOMY) which started a radical reform of the religious system. J. ruled in peace and prosperity, until in 609 Pharaoh Necho II came N. to help the Assyrians, whose cap. Nineveh had fallen to the Babylonians and Medes in 612. J. tried to halt his advance and was defeated and killed at Megiddo.

Jósika, Baron Miklós (1796-1865), Hungarian novelist, b. Torda, Transylvania. He wrote a series of popular romances after the style of Sir Walter Scott. J. became involved in the revolution of 1848, and was forced to live in exile at Brussels and Dresden, where he d. His chief novels are *Abafi*, 1836, *The Last Bátori*, 1837, *The Bohemians in Hungary*, 1840, *Eszter*, 1853, *A Hungarian Family during the Revolution*, 1852, etc. In English there are *'Neath the Hoof of the Tartar*, 1904, and *King Matthias and the Beggar Boy*, 1896, 1902, both trans. by S. Gaye.

Josquin des Prés (c. 1450-1521), Flem. composer, b. probably at Condé-sur-Escaut, Hainaut, one of the greatest masters of the Netherland school. For some time he was chapel-master at St Quentin, and from 1486 to 1494 he was musician at the papal chapel in Rome. He was regarded as the greatest composer of his day, and gave a great impetus to music in Italy. His printed compositions consist of 17 masses, numerous polyphonic chansons, and upwards of 150 motets.

Joss, Chinese idol. A joss-house is a Chinese temple; a joss-stick is a thin stick of fragrant tinder mixed with clay, used by the Chinese as incense and burned before the statue of an ancestor or holy personage.

Jost, Isaac Markus (1793-1860), Jewish historian, b. Bernberg, Anhalt, Germany. From 1826 to 1835 he was a schoolmaster at Berlin, and from 1835 to 1860 held a similar position at Frankfurt-on-Main. His chief works were 3 hist. of the Israelites pub. between 1820 and 1859, including *Geschichte des Judentums und seiner Sekten* (1857-9). He also ed. a Ger. trans. of the Mishnah (1832-6). See H. Zirndorf, *Isaac Markus Jost*, 1886.

Jostedal, valley in Norway, about 110 m. NE. of Bergen, at the E. base of the plateau of Jostedalbreen, the largest glacier-field of Europe.

Jötuns, the name of certain mythical N. giants' or 'devourers' hostile to men, to Thor, and to the beneficent Oeuvr, types of the untamable, destructive forces of nature, Loki being father of the mightiest and most dreaded of them. Their abode was Jötunheim or Utgard, desert regions in the far N., and they figure largely in the Eddas. See C. Keyser, *Religion of the*

*Northmen*, 1841, and B. Thorpe, *Northern Mythology*, vol. 1, 1852.

**Joubert, Joseph** (1754-1824), Fr. moralist and critic, b. Montignac, pupil and later prof. at the Jesu College at Toulouse, till about 1776. Going to Paris (1778) he became a member of the brilliant literary circles there, and was an intimate of Chateaubriand who pub. his *Pensées, essais, maximes, et correspondance*, 1838 (now ed. by V. Giraud, 1909). See M. Arnold, *Essays in Criticism*, 1865; A. Beaunier, *La Jeunesse de Joseph Joubert*, 1918, and *Le Roman d'une amitié, Joseph Joubert et Mme de Beaumont*, 1924; R. Tessonneau, *J. Joubert, éducateur, 1754-1824*, 1944.

**Joubert, Petrus Jacobus** ('Slim Piet') (c. 1831-1900), Boer general and politician, b. Cango, Natal, of Dutch-Huguenot parentage; commandant-general of the S. African Rep., 1880-1900. After serving with the U.S. forces in the civil war he became a successful farmer and a prominent citizen of the Transvaal, being acting president (1874) during Burger's visit to Europe. J. went to England with Kruger (1878) to protest against the proposed annexation of the Transvaal, proclaiming its independence (1880) with Kruger and Pretorius. He won the victories of Laing's Nek, Ingogo, and Majuba Hill (1881) in the war with England. In 1893 J. contested the presidency with Kruger, losing by only about 665 votes. In 1896 he defeated Jameson at the time of his great raid. He devoted much time to the military organisation of his country, and on the outbreak of the Boer War (1899) commanded the army in Natal. He besieged Gen. White in Ladysmith, after which his health failed, and he retired to Pretoria. He was a brave and upright man, commanding the respect of his foes.

**Jouffroy, Théodore Simon** (1796-1842), Fr. philosopher, b. Les Pontets Doubs, entered the Ecole Normale (1813), studying under Royer-Collard and Cousin, and became teacher there from 1817 to 1822. He was prof. at the Collège de France (1832), leaving through ill-health to become librarian at Paris Univ. (1838). J. made Scottish philosophy known in France. His works include trans. of Dugald Stewart, 1826, and Reid, 1828-1830, *Cours de droit naturel*, 1834-42, *Mélanges Philosophiques*, 1833, *Nouveaux Mélanges*, 1842. See 'Notice' by F. A. M. Mignet, 1853, and life by C. J. Tissot, 1876.

**Jouffroy d'Abbas, Claude François Dorothee, Marquis de** (1751-1832), Fr. engineer and inventor of steam navigation, b. Rochers-sur-Rognon, Haute-Marne, a captain of Infantry before the revolution. He conceived the idea of applying steam to navigation on seeing a fire-engine at Chatillot (1775). His first attempt was on the Doubs (1776), a more successful one being on the Saône (1783). Through lack of means and influence he lost the fame which Fulton won (1803). His *Charles-Philippe* was launched on the Seine (1816), and he pub. *Les Bateaux à*

*Vapeur* (1816). The Academy recognised his rights (1840), and Fulton proclaimed them in U.S.A. See monograph by A. Prost.

**Jougs, Juggs, or Joggs** (Lat. *jugum*, yoke), form of pillory used in Scotland and the Low Countries as a punishment for eccles. and minor civil offences from the 15th to the 18th cents. It consisted of a hinged iron ring or collar for the delinquent's neck, and was chained to a pillar or wall in some public place. An example remains at the churchyard gate of Duddingston near Edinburgh. See also BRANK; PILLORY; STOCKS.

**Jouhandeau, Marcel** (1888- ), Fr. novelist, b. Guéret; his real name is Marcel Provence. He was for some time teacher in the Collège de Passy, Paris. His work reveals a strong sense of the cruelty of life and the forces of evil in man; and he writes about himself and his surroundings with bitter irony and disenchantment. Among his best works are his self-analytical novels *Monsieur Godeau intime*, 1926, *Monsieur Godeau marié*, 1933, and *Chroniques maritales*, 1938. He describes life in his native tn under the name of Chaminadour. He also wrote a series of short stories: *Les Pincengrain*, 1924; *Le Journal du Coiffeur*, 1931; *Images de Paris*, 1934. See C. Mauriac, *Introduction à une mystique de l'enfer*, 1938.

**Joule, James Prescott** (1818-89), physicist, b. Salford. A pupil of Dalton, but largely self-taught. His first discoveries were made in electro-magnetism, and in *Annals of Electricity*, 1837, he pub. a description of an electro-magnetic engine which he had invented. He adopted a convenient and scientific unit of work in practical electricity, called after him 'Joule' (see METROLOGY). It is the work done in 1 sec. by the 'ampere', or unit current flowing through the 'ohm', or unit resistance, equal to 10,000,000 ergs (see ELECTRICITY and HEAT). J. is considered one of the founders of the theory of the correlation of forces, and in 1847 stated the doctrine of the 'Conservation of Energy'. Much of his time after 1843 was spent in determining by different methods with the greatest possible accuracy the mechanical equivalent of heat. He was awarded the Copley medal of the Royal Society in 1860. Amongst his pub. may be noticed *A New Theory of Heat*, 1850, and his scientific papers were pub. by the Physical Society of London, 1884-7. See O. Reynolds's memoir, 1892.

**Jourdan, Jean Baptiste, Comte** (1762-1833), Fr. general, b. Limoges, served in America, and rose to be head of the army of the N. (1793), defeating the Austrians at Wattignies. In 1794 he won the victory of Fleurus, driving the Austrians beyond the Rhine, and besieging Mainz (1795). After this he was less successful, being defeated by the Archduke Charles in 1796 at Amberg and Würzburg, and again in 1799, whereupon he resigned his command to Masséna. He defended himself in *Opérations de l'armée du Danube*, 1799, and became famous as framer of the conscription law (1798). Under Napoleon he



became director of affairs in Piedmont in 1800, marshal in 1804, and governor of Naples in 1806. He accompanied King Joseph to Spain in 1808. Though created a peer by Louis XVIII in 1819, he heartily supported the revolution of 1830. His last years were spent as governor of the Invalides. See J. de Courcelles, *Dictionnaire des généraux français*, 1820-2, and K. Gachot, *Les Campagnes de 1799: Jourdan en Allemagne et Brune en Hollande*, 1906.

**Journalism.** The evolution of J., and especially Eng. J., is one of the romantic episodes of human hist. Names crowd upon the memory, from Dr Johnson and Fielding at one pole to Archibald Forbes and G. W. Stevens at the other, or from the *Letters of Junius* and the polemics of Addison and Steele to the humblest 'story' of a modern reporter-journalist. In its accidental development lies the strange part of the hist. of Eng. J. To modern minds it is incredible that it was not earlier realised what a weapon against political tyranny publicity would prove. Hence the germ of J. in pure and quasi-literary efforts, redolent of opinion and often guiltless of fact. Its fortuitous development is seen in the very anomaly of the genesis of the freedom of the press. No formal assertion of such freedom is to be found, except in the stately lines of the *Areopagitica* of Milton. Its institution was the result of the refusal of the Commons in 1695 to renew the Licensing Act, which, in its turn, was an autocratic device consequent on the development of the art of printing. The newspaper proper begins with the development of the news letter, often in MS., which purveyed the 'chit-chat' of so much in the manner of the modern London or Paris letters, in a single printed sheet, posted on a fixed day in the week, and circulated in the provs. under the name of the *Weekly News*. This paper was pub. before 1695 and before the necessity for the permission of the Star Chamber to publish a newspaper was a thing of the past. It was by the suzerainty of the Whig partisans actually in the gov. that other papers were allowed to appear, like the *London Mercury*, *True News*, and the *Protestant Intelligencer*. After the political controversies over the Exclusion Bill (q.v.), the motive for collusion with news publishers was gone, and there was a reversion to censorship with a consequent monopoly to the *London Gazette*. But it was not for long, and the appearance of the *Intelligencer* under the editorship of the remarkable Sir Roger l'Estrange (q.v.), in the reigns of Charles II and James II, inaugurated an era of discussion of public questions in the newspaper press, which ultimately resulted in that press attaining the virtual position of the Fourth Estate of the Realm (see ESTATES OF THE REALM).

The age of Anne has been well described as the classic or Augustan age of Eng. literature, and its influence on the newspaper press was no less marked than in purely literary circles. Papers like the *Tatler* and the *Spectator*, filled with the

pub. wit of Addison, Pope, Steele, and Swift, burked politics altogether, in favour of satires on the transient, social foibles of the age. But there were a few other papers, like the Whig *Examiner* and Defoe's *Review of the Affairs of State*, which drew their breath of life from the atmosphere of politics. Fearless and scurrilous criticism of public men was inspired and even written by some of the foremost men in the state like Bolingbroke, and it began to change the character of newspapers. Henceforth they were a power to be reckoned with, which no bureaucratic action could repress, which constituted itself the guardian of public liberty, and which was courted directly or indirectly by ministers themselves. It was the practice of reporting the speeches of the opposition of the day that paved the way for publicist articles in the press, for the reports were the material upon which they were necessarily founded. In constitutional theory it was a gross breach of parl. privilege to publish debates or discuss political questions in the press, but by surreptitious means, reports, meagre it is true, crept into the papers, and before the middle of the 18th cent. the press had become firmly estab. as the backbone of ministerial or anti-ministerial support.

The triumph of John Wilkes (q.v.) and the *North Briton* marks a well-known epoch in the annals of press criticism and vindicated the right of the press to extend its criticism to the acts and words of the sovereign himself. The *Morning Chronicle* is generally credited with being the first paper to employ a regular staff of parliamentary reporters who actually took their places in relays in the gallery of the House, and James Perry, its editor, practically created the profession of J., though certainly not as we know that profession to-day. Developments in J. proceeded apace with the founding of the *Morning Post* in 1772, the *Morning Herald*, *The Courier*, *The Sun*, and the *Anti-Jacobin* before the end of the 18th cent. The proprietors of the *Morning Herald* estab. correspondents in all the chief caps. of Europe and big tns of Great Britain. Probably the rivalry between the *Morning Chronicle* and *The Times*, under the proprietorship of the famous John Walter (q.v.), did more for the progress of Eng. newspaper J. than any other event. Each paper was constantly striving to surpass the other by the introduction of some novel feature. The 'leading article' became a work of art and no less a powerful influence in the interpretation of public opinion than a source of lively interest to readers in general. Coleridge, Peter Fraser, and John Sterling were among the most notable writers who set the earlier style of 'leaders,' and though the daily newspaper press has not been remarkable for attracting the most distinguished writers, it has been the Mecca of many a leader-writer of astonishing powers of pungent criticism. John Walter's adoption of printing by steam machinery in place of the slow system of printing by hand set

*The Times* on the high road of its successful commercial and journalistic career. The enterprise of the *Daily Telegraph* in fitting out exploration parties in the early seventies, and in using to the utmost the brilliant critiques and articles on social life, literature, and art of George Augustus Sala, may almost be said to constitute the breaking-point with the early and mid-Victorian methods of newspaper J. The trenchant, vituperative, and slashing style, long becoming obsolescent, received its death-blow, not only from the keener public interest felt in matters outside mere politics, but from the reflection in the papers themselves of the greater culture and intellectual range of the people.

But modern J. also has its personal note, and that personal note is its outstanding characteristic. It is a different form of intimacy to that of the letters of Junius, or the fulminations of John Sterling of the 'Thunderer' (*The Times*). This is essentially the age of what is known as the 'human document.' With all its precision of diction and close adherence to classical models, there was in the J. of 50 (or even less) years ago a marked conventionality of tone. To us that tone seems to have been stilted and even 'priggish.' People generally, and writers no less, did not so much give free play to individual ideas as present everything in the form of independent or external phenomena, having no relation to human sympathies. It required the free play of democratic thought, not only to make art generally, and the art of J. in particular, conscious of itself, but to make criticism, which in its wider sense is the rock-bottom of J., really sincere. The progress of modern J. is a reflection of the restless and searching inquisitiveness of the age. The ramifications of the newspaper press into every dept of life are bounded by nothing but the discretion of its personnel and the law of libel. Perhaps, even in the later Victorian era, when monopoly and censorship were long-forgotten relics of the past, nothing existed to foreshadow the methods of the later J. which has been identified with the name of W. T. Stead. Big London dailies, which in that era were marked by a pompous dignity of style, succumbed to the influence of sensationalism. The modern craving for a paper that shall be readable in a limited space of time by a public pressed for time, necessitates the presentation of news in attractive form with headlines, and a précis, in leaded type arranged in paragraphs.

Different classes of readers must be catered for in different fashions. *The Times* circulates essentially among the influential elements, whence something of old conventionality and austerity still permeates its tone and make-up. The same qualities mark the *Manchester Guardian*. C. P. Scott, the editor from 1872 to 1929, became one of the greatest figures in Brit. J.

One result of the progress of modern J. is the assignment to definite and separate spheres of J. proper and literature. The

latter, no doubt, is present in the shape of book reviews and 'specials' (i.e. topical articles) on the 'literary page.' But these articles generally relate to matters of current public interest, and literary form in them is subordinate to the purpose of the article, which is primarily to persuade. The term 'journalism' is admittedly a wide one, and in a manner of speaking is almost one of degree. Anything that is written germane to some event or incident in a periodical that belongs to the class of so-called 'public



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journals' is an effort of J. But the main-spring of J. proper is news, and periodicals like the *Spectator* and *New Statesman* occupy a position midway between J. proper and literature. The duties of a journalist have become extraordinarily exacting. The greater his knowledge and experience of the world and of men the more successful is he likely to be. The most liberal education is useless without the knack of getting news and presenting that news in accurate, graphic, and convincing form. The goal of a journalist is, above all, to bring off a 'scoop' for his paper, i.e. the pub. of a particular item of news before its appearance in the columns of any other paper. Opportunities occur in time of war and the war correspondent's life is a hazardous one, as has recently been exemplified in the Sino-Jap. War, the Sp. Civil War, and the campaigns of the Second World War and in other theatres of operations, where journalists have lost their lives or been taken prisoner. In

regard to the training of a journalist England was long behind America, in that she had no schools of J. like the school of J. of the Univ. of Missouri, where a range of subjects is taught embracing sociology, economics, political science, Eng. hist., together with the arts of reporting, editorial writing, magazine J., and newspaper administration. For information on training in J. in England see *Journalism and Publishing* (careers for Men and Women series, No. 26, H.M.S.O.).

It is said by a competent authority that Amer. J. has exercised considerable influence on Eng. J. The hunt for men with 'live' ideas and methods is essentially an Amer. habit. It is not far from the truth to say that America is the home of modern J. In France the influence of Amer. methods has been no less felt than in England. But the fine literary tradition of Fr. J. still lives in the signed article, and although the transition from literature to J., or in other words from opinion to news, has resulted, as in England, in the mere co-ordination of politics with other items of intelligence, yet the frequent appearance of signed *articles de fond* by some of the most remarkable literary men of the age indicates not only the vitality of the national literary character, but the greater importance attributed by the Fr. people to the individuality of the journalist himself. This remains as true to-day as before the Second World War. Recent years have witnessed the development in Great Britain, as in America, of enormously powerful combinations of newspapers and periodicals, dominated by strong personalities. So far as J. as a calling is concerned, the danger of the combine lies in the stereotyping of opinion to the detriment of the individual outlook. The journalist becomes only the mouth-piece of his newspaper, uttering the views which the policy of his paper demands. On a free vote (29 Oct. 1946) the House of Commons, by 270 to 157 votes, adopted the motion of a Labour M.P. asking for a Royal Commission to inquire into the finance, control, management, and ownership of the press. A somewhat similar inquiry was instituted in the U.S.A. with special emphasis on the preservation of the freedom of the press, but it was not an official inquiry instituted by the gov. (See further under NEWSPAPERS.) See also ADVERTISEMENT and articles on various newspapers.

*Journalism in the U.S.A.* From feeble, almost timid beginnings, J. in the U.S.A. has grown not only as a great power in the land, but numerically and financially into a business far exceeding in extent and resources anything known anywhere else in the world. In 1689 and 1690 2 issues of the *Boston Public Occurrences* were suppressed. The *Boston News Letter* was started in 1704 by John Campbell, who was the postmaster of Boston. Other papers were started in Boston and Philadelphia in 1719. New York, to-day the undisputed metropolis of J., singularly enough had no regular newspaper of its

own until the *New York Gazette* was founded in 1725. New York began to take its dominating position in Amer. J. in the early thirties and forties of the last cent. As a result of the enterprise of 3 or 4 strong men, James Gordon Bennett, senior, started the *New York Herald* in 1835 with very slender resources. The *New York Tribune* was founded in 1841, with Horace Greeley as editor and part owner. The Civil war gave a great impetus to the newspapers of the N., with a public avid for news of the great conflict. The *New York Herald* began to do spectacular things, such as sending Stanley to find Livingstone in the heart of Africa and equipping an expedition to the Arctic. Later Bennett made an innovation which was much derided at the time, but has since been copied by newspapers all over the U.S.A. and Great Britain—the society column.

A new development in retail business gave a fresh impetus to the newspapers. This was the foundation of what are known in the U.S.A. as 'department stores,' which embrace under one roof a multitude of shops under one ownership, seeking to serve every need of the customer. To bring more trade to these shops the proprietors availed themselves of the medium of extensive advertisements in effective 'journalism.' Instead of small cards, they began to buy space to the extent of half a page, then of full pages. This enterprise on the part of advertisers brought vastly increased revenue to the papers. The era of building rich and powerful papers had begun. It was the editor, and not the newspaper, which was famous. The quotations were from what Henry Watterson said in the *Louisville Courier Journal*, Charles A. Dana in the *New York Sun*, Murat Halstead in the *Cincinnati Commercial Gazette*, W. R. Nelson in the *Kansas City Star*. With the death or resignation of these men came the new era, when the paper itself was pushed forward and the editor's name and personality were not so well known. In 1878 E. W. Scripps (q.v.) founded with slender capital the *Penny Press*, afterwards the *Cleveland Press* in Cleveland, Ohio. It was independent in politics. It aspired ardently to help the 'under dog' in life. The paper prospered and Scripps proceeded to found other evening papers along the same lines, until to-day his successors control a chain of papers from coast to coast. In 1883, inspired by somewhat similar ideas, Joseph Pulitzer (q.v.) bought the then weak *New York World*, and made of it the most liberal organ in the metropolis. Pulitzer was an aggressive opponent, and he brought to Amer. J. a touch of sensationalism which was then new. In 1898 Adolph S. Ochs (q.v.) bought the semi-moribund *New York Times*, and Wm Randolph Hearst (q.v.) the *New York Journal*. They began to fight Pulitzer for circulation. Hearst conducted his papers even more sensationally than Pulitzer, and gave rise to the term 'yellow journalism.' Ochs proceeded on more sober lines, tried to print all the

news, and gradually made of his paper one of the wealthiest in the world.

The fight for circulation and advertising brought in its train the very large papers the people of the U.S.A. know to-day. The daily papers, both morning and evening, in New York range from 40 to 60 pages. The Sunday ed. of the *New York Herald-Tribune* before the Second World War often had from 100 to 140 pages. Issuing big papers, the editors have a great deal of space at their disposal, and are therefore in the market for good news feature stories. This demand gave rise to



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another peculiar development in Amer. J. The Newspaper Enterprise Association—one of the earliest in the field—and other similar concerns, started out to supply news features to one paper in each city. This developed even beyond the dream of its founders, and before long the Newspaper Enterprise Association, for instance, was distributing to its clients not only news features, but also editorials, the contents of a sports page, a woman's page, a religious column, book reviews, news of the cinema world and the dramatic field, news photos, and many strip cartoons. A later development in Amer. J. was the imitation in New York and a few other cities of the picture papers long familiar to Londoners in the *Daily Mirror* and *Daily Sketch*. Whereas the latter had before the Second World War from 16 to 32 pages daily, those in New York had about 60 pages. In popular language these papers are known as 'Tabloids.'

The trend in recent years in the U.S.A. has steadily been the reverse of that in Great Britain. Whereas in the latter the morning papers have the largest circulation and popularity, in the U.S.A. it is the evening papers which have the primacy.

Another marked tendency is for the estab. under one ownership, editorial direction, and management of chains of papers. The most notable of these are the Scripps-Howard chain, with papers in 18 cities and total circulation of over 3,600,000, and the Hearst chain, with papers in 18 cities with 5,384,700 daily and 9,975,900 Sunday circulation.

Finally there is one feature of Amer. J. unmatched anywhere else in the world. This is the number of papers printed in foreign languages. The reason for it is the polyglot pop. of the U.S.A. It has been estimated that the average circulation of the foreign language press in the U.S.A. is about 2,300,000, divided as follows: Bohemian, 145,780; Chinese, 31,000; Finnish, 34,000; French, 44,000; German, 335,000; Greek, 35,000; Hungarian, 70,000; Italian, 315,000; Japanese, 65,000; Lithuanian, 55,000; Polish, 382,000; Russian, 33,000; Slovak, 30,000; Slovenian, 20,000; Spanish, 55,000; Yiddish, 536,000; and other languages about 109,000. See also MAGAZINES and NEWSPAPERS. See L. N. Flint, *The Conscience of the Newspaper*, New York, 1925; G. F. Carr and F. E. Stevens, *Modern Journalism*, 1931; C. Bourdon, *Le Journalisme d'aujourd'hui*, 1931; R. Christingen, *Le Développement de la Presse*, 1944; I. Rothenberg, *The Newspaper*, 1947; A. Aspinall, *Politics and the Press, 1780-1850*, 1949; International Press Institute, *The Flow of the News*, 1953; A. P. Robbins, *Newspapers To-day*, 1950.

See also MAGAZINES and NEWSPAPERS.

**Journalists**, Institute of, senior organisation of the profession, incorporated by royal charter in 1890. It had its origin in the National Association of J., which was founded in 1883 and converted into the Institute in 1889. It is an independent body, its object, as set forth in the charter, being 'the promotion of the interests of journalists and journalism.' In addition to being a corporate professional society, the Institute is a certificated trade union and as such is fully recognised as a negotiating body on salaries and working conditions of J. There are 2 professional classes of membership, called fellows and members, and a class of junior members undergoing preparation for professional membership: fellows are J. of recognised professional standing or of special experience or distinction. Two small non-professional classes consist of associates and honorary members. There is an Overseas List, consisting of members of Brit. nationality resident overseas, and a Foreign List, comprising members of foreign nationality resident abroad. Women are eligible for the sev. classes of membership on the same terms as men. An employment register is maintained, with a section for freelances; legal advice is also provided on any question affecting professional right or privilege; there are sev. benevolent funds. The Institute has its own hall at 2-4 Tudor Street, E.C. 4.

**Journalists**, National Union of, Brit.

trade union of working J., is the largest association of its kind in the world. It includes members of newspaper and periodical staffs, freelance correspondents, television J., press photographers, and editorial artists. It has done much to raise the status of professional J. Its offices are at 22 Great Windmill Street, London, W.1.

**Joust, see TOURNAMENT.**

**Jove, see JUPITER.**

**Jovellanos** (or **Jove Llanos**), **Don Gaspar Melchior de** (1744-1810), Sp. author and statesman, magistrate at Seville and Madrid. In 1790 he shared in the disgrace of Cabarrus, but Charles III made him minister of justice in 1797. Imprisoned in Majorca from 1801 to 1808 through the intrigues of Godoy (q.v.), on the latter's fall he returned and became a member of the Central Junta. He wrote the tragedy *El Pelajo*, 1769, the comedy *El Delincuente Honrado*, 1773, *Memorias Politicas*, 1801, and *A Mis Compatriotas*, 1811, a defence of the Junta and himself against suspicions of treason. He also trans. the first book of *Paradise Lost*. See lives by E. González Blanco, 1911, J. Juderías, 1913, and C. Artiñano y de Galdecano, 1913.

**Jovianus** (or **Jovinianus**), **Flavius Claudius**, Rom. emperor (AD 363-4), b. c. 331. He was captain of the praetorian guards under Julian, accompanying him against the Persians. J. escaped with the army to the Tigris on the death of Julian (363), and was soon chosen as his successor. He was obliged to conclude a humiliating peace with the Persian king, Sapor (or Shapur), ceding various dists. and fortresses, including Nisibis. He proclaimed Christianity at Antioch, upheld the Nicene Creed against the Arians, and restored Athanasius to the see of Alexandria. The manner of his death at Dadastana 7 months after his accession is uncertain. See Gibbon, *Decline and Fall of the Roman Empire* (chs. xxiv, xxv).

**Jovinus**, one of the generals of Honorius, who, in AD 411, assumed the imperial title and won part of Gaul. In the following year he was defeated at Valence by the Franks and Visigoths under Ataulphus, and put to death by order of the Rom. prefect Dardanus.

**Jowett, Benjamin** (1817-93), scholar and theologian, educ. at St Paul's and Oxford, becoming fellow of Balliol (1838), tutor (1842-70), and finally master (1870). He was Regius Prof. of Greek at Oxford (1855). One of the greatest moral teachers of his age, he became intimate with Stanley, joining him and Tait in advocating certain univ. reforms (1846). His personal influence at the univ. was very great, and although his views met with no little hostility he had numerous supporters, his pupils being especially enthusiastic in their support. Among his pupils at Balliol were Curzon, Asquith, Grey (of Fallodon), Bowen, Loreburn, Gore, Lang (the archbishop), Morier, Tout, Caird, Swinburne, and Walter Morrison. The flow of Balliol successes bred envy and some malice outside the

college, and even in the college itself maintenance of the flow tended to become an objective in itself. Sir Robert Morier, J.'s best-loved pupil, certainly owed his ambassadorial career to J.; not indeed because J. exercised any influence in official quarters but solely because he converted a lax, imperfectly educ. but able young man into a worker. In J.'s own mind the desire to see his young men succeed sprang from hatred of failure. His own father had been a failure and his boyhood one of extreme poverty and loneliness; and this gave the spur to his efforts on behalf of his pupils. Beginning from nothing, he ended as a kind of mentor-in-chief to most of the great Victorians, men and women alike. He was incomparably the greatest educator of able young men England has produced. One of the Broad Church school, his *Epistles of St Paul to the Thessalonians, Galatians, Romans, with Critical Notes and Dissertations*, 1855, and a contribution to *Essays and Reviews*, 1860, roused a storm of criticism and hostility. But he undoubtedly led the way to a new understanding of St Paul. He may be said to have rediscovered the Gk philosophers, his outstanding work in this sphere being his trans. of Plato's *Dialogues*, 1871. There followed a trans. of Thucydides, 1881, and of Aristotle's *Politics*, 1885. His *College Sermons* were pub. in 1895. He also played a part in the world of affairs, notably in the reconstruction of the Indian Civil Service and the reform of medieval Oxford. He was convinced that only a small fraction of the men of ability ever came to the univ. in England. He worked to reduce the expense of a career at Oxford, encourage non-collegiate students, and promote physical science and mathematics. In all these endeavours he had some success. He pressed the claims of secondary education and univ. extension. See Evelyn Abbott and L. Campbell, *Life and Letters of Benjamin Jowett*, 1897, and (ed.) *The Letters of Benjamin Jowett*, 1899; Geoffrey Faber, *Jowett: A Portrait with a Background*, 1957.

**Jowitt, William Allen**, Earl (1885-1957), lawyer and politician, educ. at Marlborough and New College, Oxford. He was called to the Bar, 1909; K.C., 1922. He was a Liberal M.P., 1922-4, but subsequently joined the Labour party, being a Labour M.P. 1929-31 and 1930-45. From 1929 to 1932 he was attorney-general; solicitor-general, 1940-2; paymaster-general, 1942; minister without portfolio, 1942-4; first minister of national insurance, 1944-5; and, under the post-war Labour Govs., lord chancellor, 1945-51. He was created a baron, 1945; viscount, 1947; and earl, 1951. On J.'s death his titles became extinct.

**Joyce, James Augustine Aloysius** (1882-1941), writer, b. Dublin, one of a large and poor family. Educ. at the National Univ. of Ireland, he early showed strong literary tendencies. In 1903-4 he was in Paris engaged first in medical studies and, later, in having his voice trained for the concert platform. Returning to Dublin he pub. a

few stories but could not make a living, and therefore, with his wife, migrated to Trieste where he taught English, having much talent for languages. He again returned to Dublin to start a cinema theatre which, however, failed. Hitherto his only book was one of lyrics called *Chamber Music*, 1907. His only other verse was *Pomes Penyeach*, 1927. In 1914 appeared *Dubliners*, which had been delayed for 9 years through wrangling with publishers over excisions demanded by them. *A Portrait of the Artist as a Young Man* was serialised by Ezra Pound in the *Egoist*, 1914-15. At this time J. was under 'free arrest' in Austria but was allowed to go to Zürich, where he formed a company of Irish players who performed his play *Exiles*, 1918, which was modelled on Ibsen's work. He had in 1914 begun his chief work, *Ulysses*, which appeared serially in the *Little Review* (New York), from 1918 to 1920, at which date it was banned by a prosecution launched by the Society for the Suppression of Vice. At Zürich J.'s fight began to fail, and a few years after the First World War he settled in Paris. *Ulysses* was pub. in book form in Paris and London in 1922, but was not allowed to circulate in England or America. Eds. were printed in Paris and thousands of copies were smuggled into England by individual book collectors. His next work, *Work in Progress*, began to appear in 1927 in parts under various titles. In it the word-coining which was a feature of *Ulysses* was extended to the point of incomprehensibility. *Ulysses* is a bitter and ferocious satire, which was variously hailed as a tremendous libel on humanity and as the *chef-d'œuvre* of a second Tertullian. The book purports to relate the whole mental and physical hist. of Bloom, Jewish advertisement canvasser, and Dedalus, scholar-philosopher, during one single day in Dublin. J. claimed to have discovered his literary device in Edouard Dujardin's forgotten novel, *Les Lauriers sont coupés*, 1888, and certainly it is to be found employed by Proust, Dorothy Richardson, and other writers, and it has had a far-reaching influence on the technique of many other modern writers. J. worked in great poverty for much of his life and had numerous operations for cataract. He d. in Zürich.

J.'s earlier books give scarcely a hint either of the power which went to the making of *Ulysses* or of the perversity which makes his even more ambitious experiment, *Finnegans Wake*, 1939, almost unintelligible. It must be admitted that even *Ulysses* would have been less widely read or carefully studied, and therefore less influential among the younger writers of its day, but for a reputation gratuitously made for it by the Brit. Customs officials, who autocritically took it upon themselves to treat the early eds., printed on the Continent, as unfit for circulation in this country. The Amer. courts, which insisted that his picture of an Irishman's day was morally innocuous, showed greater discernment. That J. was

genuine artist, sincere and profound, is clear from the simplicity of his early short stories, *Dubliners*, 1914, and from the well-defined autobiographical narrative, *Portrait of the Artist as a Young Man*, 1916. In *Ulysses* he essayed the difficult task of presenting a complete picture of the life of the individual in our time, both conscious and subconscious, the simple, slinking, groping man with the hard unrelenting universe around him. In *Finnegans Wake* he seems to be trying to break through the barriers of time, but so complex is the medium that, without commentary, few can follow the meaning. One of the inspirations of this book was the It. Giambattista Vico's *Scienza Nuova*, first pub. in 1725. To Vico in part can be traced J.'s idea of word formations as the key to the human mind and to the various phases of experience. J.'s originality lies in his discovery of a literary form for expressing the inconsequent complexity of the human mind and the shadowy similarity that its migrations bear to the orderliness of grammatical sentences or the appearances of time and space. In a word, he annihilated the ordinary and the normal, and revealed a chaotic world of the mental and emotional reactions which may come over men in a single day. He sought to devise a new form of language, which would not merely convey meanings to the conscious intellect, but would stir the unconscious mind to direct experience of a poetic reality embodied in the sound and rhythm of the words. This new language was fully developed only in his last book, *Finnegans Wake*. Its obscurities, hailed as ultra-modernistic, in fact represented a return to the kind of speech which some philologists believe must have been the common speech of mankind in distant ages before the invention of writing. But for J.'s readers unfortunately it was a language that had to be learnt, and probably it has been thoroughly understood by no one save J. himself. See lives and studies by L. Golding, 1933; H. Gorman, 1941; J. Levin, 1944; H. Kenner, 1956; also R. M. Kain, *Fabulous Voyager, James Joyce's Ulysses*, 1947; J. J. Slocum and H. Cahoon, *A Bibliography of James Joyce*, 1953; M. Magalaner and R. M. Kain, *Joyce: the Man, the Work, the Reputation*, 1956; S. Gilbert (ed.), *Letters of James Joyce*, 1957.

Joyce, William (1906-46), b. New York, his father being a native of Co. Mayo, Ireland, and his mother a native of Crompton, Lancs, England. The father became a naturalised Amer. citizen in Oct. 1894. A citizen of the U.S.A., J. accepted the harbourage of Britain for 18 years, and took an active part in its politics. By declaring himself a Brit. subject he obtained, in 1933, a Brit. passport for holidays abroad and renewed it for a year in Aug. 1939; from Sept. 1940 he was employed by the Germans to broadcast anti-Brit. propaganda. His talks inspired ridicule rather than alarm (he was nicknamed 'Lord Haw-Haw' by a Brit. journalist and this label certainly helped to lessen his propagandist effectiveness),

but their bitterness to a country which had given him hospitality for the greater part of his life disintitled him to any sympathy when, after the Second World War, he was tried and convicted of treason at the Old Bailey (Sept. 1945). His appeal to the House of Lords was dismissed (1 Feb. 1946) and he was executed. See further under TREASON. See Rebecca West, *The Meaning of Treason*, 1949.

**Joynson-Hicks, Sir William**, see BRENTFORD, 1st VISCOUNT.

**Juan de Fuca, Strait of**, connects Puget Sound with the Pacific Ocean, and separates Vancouver Is. on the N. from the state of Washington on the S. It is about 90 m. long and 13 m. broad, and contains at its E. end the San Juan archipelago, through which the boundary was drawn by an arbitration by the Emperor of Germany in 1872.

**Juan de la Cruz, St.**, see JOHN OF THE CROSS, St.

**Juan Fernández**, group of volcanic is. and an islet, belonging to Chile, prov. Aconcagua, situated about 380 m. W. of Valparaíso; they are named *Más a tierra* (landward), 13 m. long and 4 m. wide, consisting of rugged rock with rich vegetation, *Más a fuera* (outer), Santa Clara or Goat Is., and El Yunque. They were discovered about 1572 by Juan Fernández, who introduced goats and European plants on them. On the N. side of the inner is. is Cumberland Bay, where Alexander Selkirk lived in solitude for 4 years, 1704-9, which incident is supposed to be the basis for Defoe's *Robinson Crusoe*. The is. are now used as penal settlements. Lobster fishing is important. Total area about 70 sq. m.; pop. 450.

**Juan-les-Pins**, Fr. tn in the dept of Alpes-Maritimes, on the Riviera (q.v.) coast, 4 m. SW. of Antibes. It is a noted holiday resort. Pop. 1000.

**Juan Manuel**, see MANUEL, DON JUAN. **Juárez, Benito Pablo** (1806-72), Mexican statesman, b. San Pueblo Guelato, Oajaca, of Indian parentage. Appointed a judge of the civil court in 1842, he became governor of the state of Oajaca in 1847, greatly improving the prov. conditions during his term. He was exiled from Mexico in 1853, but returned 2 years later and joined Alvarez and the revolutionists. Elected president in 1858. He retained this position till his death, and his vigorous and liberal policy was of great benefit to the nation. See lives by (i. Baz, 1874, U. L. Burke, 1894, and García Jenaro, 1907. There is a drama on J. by F. Werfel, *Judrez und Maximilian*, 1914. See R. Roeder, *Judrea and his Mexico* (2 vols.), New York, 1947.

**Juba**, one of the chief rivs. of E. Africa. It rises in Ethiopia and enters the Indian Ocean 10 m. N. of Kismayu, in Somalla. Length over 1000 m.

**Juba I**, King of Numidia, an ally of Pompey, whom he supported against Caesar. He committed suicide after the battle of Thapsus (46 BC).

**Juba II**, son of the preceding, made King of Numidia about 30 BC, and transferred to Mauretania in 25 BC by the

Emperor Augustus on Numidia being made a Rom. prov. He was noted as an historical and general writer and wrote works on painting, botany, grammar, the theatre, etc., and hist. of Rome, Africa, Assyria, and Arabia, of which only fragments have survived.

**Jubal**, or **Jabal**, son of Lamech and Ada; inventor of the harp or lyre, and so the first instrumental musician according to Gen. iv. 21.

**Jubbulpore**, see JABALPUR.

**Jubilate**, opening words of the 100th Psalm, an alternative second canticle in the morning service of the Church of England.

**Jubilee**, The Year of, peculiar custom among the Hebrews, in which every fiftieth year all land was restored to those original owners who had lost it within that period. All who through poverty had had to hire themselves out were released from their bondage, and all debts were remitted (Lev. xxv). The J. was proclaimed at the close of harvest, on the tenth day of the seventh month, the day of atonement, when the *yôbél* (horn) was sounded. The Rom. Catholics have borrowed this word from the Hebrews in their celebration of ordinary or extraordinary jubilees. The first J. was inaugurated by Pope Boniface VIII in 1300, when he issued a bull granting plenary indulgence to all pilgrim visitors to Rome, should they fulfil certain conditions.

**Jubilees**, The Book of, apocryphal book known also as Little Genesis, The Apocalypse of Moses, The Testament of Moses, and The Life of Adam. The author, a rigid Pharisee of the time of John Hyrcanus (135-105 BC), rewrites Genesis and Exodus, adding a commentary, to further the views of his party. In opposition to the Hellenist party, he draws a sharp line between Jews and Gentiles, and insists upon the eternal nature of the Law. Before the revelation of the Law to man, it had over been observed in heaven by the angels, and so would be throughout eternity. The author in every way glorifies Judaism, and insists on the rigid observance of its ceremonial. The work calculates periods of time in J., periods of 7 times 7 years with 1 year added at the end, and lays stress on the mystical importance of the exact calculation of weeks and J., with the ever-recurring number 7. The work was Hebrew, but early trans. into Greek and thence into Latin and Ethiopic. See C. Albeck, *Das Buch der Jubilien und die Halacha*, 1930.

**Juby**, Cape, on the W. coast of the Sahara, Africa, a low sandy point opposite the is. of Fuerteventura, which is one of the Canary Is.

**Jucar**, or **Jucar**, Sp. riv., rising in the NE. of the prov. of Cuenca, and flowing S. through Cuenca and E. through the provs. of Albacete and Valencia to the Mediterranean at Cullera (q.v.). It irrigates rice and other plantations, and there are hydro-electric installations. Length 314 m. (See illustration, p. 378.)

**Judaea**, region in the S. of Palestine

originally allotted to the tribe of Judah, occupied by the Jews who returned from the Babylonian exile during the periods of Persian, Gk. and Rom. supremacy. Its limits varied at different times. Josephus says (*Bell. Jud.* iii. 5) that it extended from Annath, called also Borecos, on the N. to the vil. of Jordan on the S., from Joppa on the W. to the Jordan in the E. St Luke, however, frequently uses the title to include the whole of W. Palestine. In the time of Herod Idumaea was included in J. The plateau of J. takes the form of a long zigzag central spine which throws out a series of steep spurs to E. and W. Modern J. came under Brit. mandatory administration, and is now

poems survive, 800 being of a secular nature, and 300 religious. His poetry represents both the sufferings and the aspirations of his people. In him the Jewish-Sp. renaissance of poetry reached its loftiest form both as regards subject-matter and nobility of conception, and he may be justly considered the greatest medieval Heb. poet. His poems are still used as prayers by Jewish congregations. According to tradition he met his death on a pilgrimage to Jerusalem. Besides his poems, he wrote an apologetical work in Arabic, entitled *The Book of Argumentation and Demonstration for the Defence of the Oppressed Religion*, known as *Chozari*. Selections of his poems were trans. by I.



CUENCA, ABOVE THE VALLEY OF THE JUCAR

divided between Israel and Jordan. J. is an agric. country, wheat, barley, olives, etc., being produced. See also ISRAEL and PALESTINE.

Judah, according to the Genesis narrative, was the fourth son of Jacob and Leah, b. Haran in Mesopotamia. The tribe which bears his name was the most important of the 12, and from it sprang the house of David. The cap. of J. was Hebron, and its ters. stretched from Jerusalem on the N. to the ter. of the Amalekites on the S., and from the Dead Sea on the E. to the Mediterranean on the W. Jerusalem was taken by David, and formed a new cap. Under David the kingdom of J. attained its greatest extent. On the death of Solomon this kingdom fell into 2 parts: J. to the S. and Israel to the N. The kingdom of J. survived until 586 when it was destroyed by the Babylonians. See ISRAEL.

Judah ben Samuel ha-Levi (c. 1085-1140), Sp.-Jewish poet, philosopher, and physician, b. Toledo. Over 1100 of his

poems survive. See J. M. Millás Vallicrosa, *Yehudá ha-Levi como poeta y apologeta*, 1947, and R. Kayser, *The Life and Times of Jehudah Halevi*, 1949. See also Heine's poem 'Jehuda ben Halevi'.

Judaizers, see EBIONITES.

Judaism, faith and ceremonies of the Jews, as revealed by God to Moses (the *Torah*) and interpreted by rabbinical authority. J. is the oldest monotheistic faith, the forebear of Christianity and Islam. In the O.T. it is recorded how Abraham attained to the worship of one God and adopted the rite of circumcision, the outward sign of the covenant between God and his people. Subsequently his descendants were led out of Egypt by Moses to Mt Sinai, where the Ten Commandments and other laws were revealed. These included the estab. of the priestly and Levitical orders, the institution of sacrifices, a civil and criminal code, a code of sexual morality and personal hygiene, and the dietary laws. The whole is based on the fatherhood of God, His choice of



Israel, and divine revelation. After the destruction of the Temple in 586 BC there arise the further developments of the synagogue, the ancestor of the church and mosque, Messianism, and eschatology. Inspired prophecy came to an end, and the custody of the *Torah* passed into the hands of the scribes, later rabbis (q.v.). They eventually produced the *Talmud* (q.v.), an authoritative compendium of J., which helped J. to surmount the difficulties occasioned by the loss of national independence and the rise of Christianity and later Islam. In the Middle Ages more interest was shown in dogma. Maimonides (q.v.) laid down 13 principles of J. These comprise the existence, unity, incorporeality, omniscience, and eternity of God and His exclusive worship, the truth of prophecy and the superiority of Moses, the truth of the revealed *Torah* and its immutability, reward, and punishment, the coming of the Messiah, and the resurrection of the dead. At the same time revised codes of Jewish practice were being drawn up, culminating in the *Shulchan Aruch* of Joseph Caro (1555), which is current to-day. There is no world rabbinical authority, problems which arise being dealt with by individual rabbis or courts (*Beth Din*). There have always been dissenting sects, notably Karaim (8th cent.), which rejected the *Talmud*, and contemporary Reform and Liberal J., which claim the right of abandoning dogmas and practices which they believe to be outdated. See M. Friedlander, *The Jewish Religion*, 1891, and I. Epstein, *The Faith of Judaism*, 1954.

**Judas, St.** not Iscariot (John xiv. 22), spoken of in the Lucan list as *Ioudas Iakobou*, which may mean either 'brother' or 'son of James.' He is generally identified with the Thaddeus of Matthew and Mark, and is known as St Jude. He is the writer of the Epistle of Jude. His feast is on 28 Oct., and he is the patron of the hopeless.

**Judas Iscariot**, son of Simon (John vi. 71), betrayer of Jesus, the only one of the Twelve who did not come from Galilee. His name tells us that he was a Judean of the tn of Kerioth. The gospels associate his action with avarice, but widely divergent views have been held; some, such as the Gnostics in ant times and Noack in modern, have tried to make his action in hastening the Atonement a praiseworthy one. Others hold that he desired to test Jesus, to see whether he were indeed the Christ. It is more probable that his early love had cooled with his continued avarice and peculation, and that, turning to hate, his hasty temper led him to an act followed by all the terrors of remorse.

**Judas Maccabaeus**, 'the Hammer,' son of the priest Mattathias, the first to resist actively the persecution of the Jews by Antiochus Epiphanes. Mattathias d. in 166 BC, and Judas took command of the insurgent forces. A great warrior, he gained a series of successes over the Syrian generals, Apollonius, Seron, and Gorgias, and finally over the viceroy Lysias him-

self. Judas made Jerusalem his centre of operations and also reorganised the religious system. He restored and fortified the Temple, procured new priests, and revived the observance of the Law. The Temple was solemnly rededicated at the end of the year 165 BC, 3 years after its profanation by Antiochus. This was the origin of the Feast of the Dedication (John x. 22). Religious freedom was granted in 162, and the main object of the war was thus achieved, but Judas and his friends now strove for political independence. Judas, however, was defeated and slain by Bacchides at Eleasa (161 BC). The command was then taken by his brother Jonathan. See ISRAEL, *From the Exile to the Revolt of the Maccabees*; also *The Books of Maccabees*; J. W. Hunkin in *New Commentary on Holy Scripture*, 1928; T. Corbishley in *Catholic Commentary on Holy Scripture*, 1953; A. M. Hyamson, *Judas Maccabaeus, the Hammer of God*, 1935.

**Judas of Galilee**, mentioned in Acts v. 37, was, with Sadduk the Pharisee, leader of an insurrection in AD 6 or 7, on the occasion of Judaea coming under direct Rom. administration. See also GALLAEANS.

**Judas Tree**, name applied popularly to sev. trees, on one of which Judas is said to have hanged himself. It is given most commonly to *Cercis siliquastrum*, a leguminous tree found in S. Europe and cultivated as a hardy plant in Britain. The purple flowers are papilionaceous, and show before the leaves. See also JEW'S EAR.

**Judd, John Wesley** (1840-1916), geologist, b. Portsmouth, entered the Royal School of Mines, joining the Geological Survey staff in 1867. In 1876 he became prof. in geology at the School of Mines, and in 1881 held the same position at the Royal College of Science. C.B., 1895. His chief pubs. are *Volcanoes*, 1881, *The Student's Lyell*, 1896, and *Geology of Rudland*, 1875.

**Jude, St.** see JUDAS, ST, not Iscariot.

**Jude, The Epistle of St.** smallest of the general epistles, a canonical book which attained to its position only after much disputation. It does not appear in the Peshito, or Syrian version of the N.T., nor is it quoted by the majority of Early Christian writers. Eusebius classes it among the Antilegomena, and later St Jerome says that its use of the Apocryphal Book of Enoch was the reason of its rejection by many. The author speaks of himself as 'Jude, a servant of Jesus Christ and brother of James,' i.e. Judas ('not Iscariot'), the apostle. There is a close literary connection between J. and 2 Pet. 'cf. 3-18 and 2 Pet. i. 5; ii. 1-18). J. is probably the earlier. The epistle is directed against a kind of false teaching closely allied to Gnosticism (q.v.), though there is no means of deciding against which particular sect he wrote. This 'gnosticism' had led to immoral and licentious practices, and against these the writer also warns his readers. His main object is to urge them to do this by

contending 'earnestly for the faith once delivered to the saints.' See J. Moffatt, *The General Epistles*, 1928; Little (in Gore's *New Commentary*), 1928; J. W. Ward, *St Peter and St Jude*, 1934; Wilmering (in *A Catholic Commentary*), 1953.

**Judge.** A J. is one who is invested with the power to hear and determine civil and criminal causes, and generally to administer justice by making such orders, decrees, and judgments as to him seem best fitted to subserve that purpose. The status of the highest J.s. at any given time, in any given community, has always been one of great dignity; but the functions have differed to a remarkable degree, varying from those above noted to those of a mere juror or J. of fact; and again, judgments have varied from the ancient conception of divinely uttered awards of the Homeric poems to the prosaic though admirable models of scientific precision of the modern High Court J. In ancient codes, as Maine has suggested, the *themistes* (Gk *Themis*, goddess of justice), or judgments pronounced, whether by a king or priest, in a dispute between individuals, were of so exalted a nature in the vulgar mind that they were not only deemed to be due to divine dictation but took the place of all law-making, and indeed laid the foundation of customary law. In Rome, during the era of the kings, the supreme J. in all cases was the king himself, and civil causes were decided by him in his capacity of *pontifex maximus* (high priest), *ius* and *sacra* (law and sacred law) being for the most part inextricably involved in one another. In the developed Roman legal system the *judex* or J., who was generally a senator or, later, a knight, was a person with a very clearly defined duty of judging an issue submitted to him by the praetor or magistrate in a document called the *formula*. But it was the high status and delegated sovereign authority of the magistrate that invested legal proceedings with weight and solemnity; the *judex* had long since sunk to the condition of a mere arbiter, who could not exert the force of the state unless empowered so to do by the magistrate, with whom also it lay to declare what the law was in particular cases. In all developed modern systems the highest J.s. combine both of the following functions: they not only declare the law, even altering or improving it on occasion (Bentham's 'judge-made law'), but they set in motion the machinery for enforcing their judgments. In England the term 'judge' is confined to J.s. of the Courts of Appeal, High Court J.s., and Co. Court J.s.; J.s. of Bor. Courts are called 'recorders'; of Metropolitan Magistrates' Courts 'stipendiary magistrates'; and of Petty Sessions 'justices of the peace.' The Lord High Chancellor, the head of the Eng. judicial system, appoints the puisne (i.e. junior. from Fr. *puisne*, meaning literally 'later born') J.s., of whom there are 6 in the Chancery Div. (of which Div. the Lord Chancellor is titular president), 17 in the Queen's Bench Div., excluding the Lord Chief Justice (who,

besides being president of the Queen's Bench Div., is also a member of the body of Lords of Appeal in Ordinary), and 5 in the Probate, Divorce, and Admiralty Div. The J.s. of the highest Court of Appeal, the House of Lords, regarded as a tribunal, are the Lord High Chancellor, ex-Lord High Chancellors, 7 Lords of Appeal in Ordinary, the Lord Chief Justice, the Master of the Rolls, and the President of the Probate, Divorce, and Admiralty Div. There are 8 Lords Justices, who form the penultimate Court of Appeal. All puisne J.s. are knighted on appointment, but are addressed as 'My Lord' or styled 'Mr Justice —'. The Lord Chief Justice is merely the titular head of the Queen's Bench Div., but, since the institution in 1908 of the Court of Criminal Appeal, he presides over the Court. The lord mayor and aldermen are titular J.s. of the Central Criminal Court (Old Bailey), but its regular J.s. are the Recorder of London, the Common Serjeant, and the 2 J.s. of the City of London Court. The number of Co. Court J.s. varies but is usually about 60. See also CIRCUITS and INFERIOR COURTS. See R. C. Ensor, *Courts and Judges in France, Germany, and England*, 1933, and E. Jenks, *The Book of English Law*, 1936.

**Judges in the U.S.A.** Each of the 48 states of the U.S.A. has its own judiciary enforcing and construing its own state laws. Compared with the Brit. system the judiciary is rather complicated, and one outstanding difference is that all judicial offices are filled by election by the people. In many states candidates for judicial positions are nominated by political parties and their names placed on the political ballots. In a few, like New York, for the higher judiciary an endeavour is made to take the J.s. out of politics by nominating an agreed 'ticket' of eminent men. Each tn. of any size elects a police J. to try cases of minor infractions of the municipal laws. Each co. elects a co. J. to try cases of a higher degree. Then there are elective J.s. who hear the more important criminal cases or the bigger civil suits. Most of the states have a set of appellate J.s. who hear appeals from these courts. Finally, most states have each a supreme court, which is the last tribunal of resort in the commonwealth. The terms of office for which J.s. are elected vary in different states from 4 to 17 years.

The U.S. J.s. deal only with the Federal laws of the nation as a whole. They are named by the president of the U.S.A., hold their positions for life, and have to be confirmed by the U.S. Senate. The lowest order of these J.s. is known as the Federal Dist. Court J.s. Next above them are the U.S. Circuit J.s. The whole country is divided into 10 circuits, and there are 39 of these J.s. The U.S. Circuit Courts of Appeal consist of the Dist. and Circuit J.s. in the respective circuits, together with a Justice of the U.S. Supreme Court who is assigned to each circuit. Finally, at the apex of the entire judicial system of

the country, the court of absolute last resort is the U.S. Supreme Court composed of a Chief Justice and 8 Associate Justices. This court is so powerful that it can even abrogate a law enacted by the Congress, if it finds the statute in contravention of, or conflict with, the U.S. constitution.

**Judge Advocate-General**, army official appointed on the recommendation of the Lord Chancellor and responsible to that authority, but prior to 1948 appointed by the Crown and responsible to the secretaries of state for war and air. He enjoys a status and remuneration not less than those of a puisne judge of the High Court. The responsibility for acting or not acting on his advice in particular cases still remains with the secretary of state concerned.

Formerly the duty of the J. A.-G. was to advise on the legality of proceedings at courts-martial, with power to revise sentences passed by such courts, and upon other matters relating to the army. He was also at one time responsible for prosecutions, but ceased to be so after the Crawley trial of 1868. The former J. A.-G.'s dept, conformably to the Lewis Committee's recommendations, has been reconstituted so as to separate the functions of pre-trial advice and of prosecution from functions of a judicial character. The former functions are no longer the responsibility of the J. A.-G., but have been transferred to directorates of legal services in the War Office and Air Ministry. The office of J. A.-G. dates back to the 16th cent. For long the holder of the office also acted as secretary of the Board of General Officers. After this board was abolished in 1855 his functions became purely legal. During the 19th cent. the office was held by a privy councillor, who was also a member of the gov., but the functions of the office were in 1892 assigned to a judge of the High Court. That arrangement not proving satisfactory, the duties were by 1905 assigned to a barrister at a salary of £2000 a year. The changes of 1948 as recommended by the Lewis Committee (which endorsed similar recommendations of the Oliver Committee of 1938) are in effect a reversion to the arrangement of 1892. There is an analogous official to the J. A.-G. at the Admiralty—styled the Judge Advocate of the Fleet (q.v.)—to advise on matters of naval law.

See also COURTS-MARTIAL.

**Judge Advocate of the Fleet.** Appointment usually given to a practising barrister. Under the Naval Discipline Act of 1866, amended by the Act of 1884, courts-martial consist of from 5 to 9 officers of defined ranks who try the cases and make their judgments. In theory the Judge Advocate sits with them, not as an equal judge or with any right to interfere with their decisions, but rather as a legal adviser and as a representative of the Queen empowered to delay action in certain cases. In practice he is usually represented by an appointed barrister, who is in attendance and acts for him.

The Judge Advocate's position becomes important when a death sentence is passed during peace time, as, though he does not constitute a Court of Appeal, and may not himself override the decision, he can, if the case warrants it, advise the Queen to grant a royal pardon.

**Judges, The Book of** (Heb. *sopherim*, cf. Carthaginian *sufetes*), second book of the 'Former' Prophets, continuing the hist. of the Israelites from the death of Joshua to the death of Samson. The book may be divided into 3 parts: (1) chs. i.-ii. 5 is a synopsis of the conquest of Canaan earlier in date than the Book of Joshua, from which it varies, making the action of the various tribes more independent. (2) The main body, chs. ii. 6-xvi. 31, presents an apparently consecutive and chronological account of the gov. of Israel under 6 major and 6 minor judges. The scheme of the cycles is explained in ch. ii. 11-19, which shows the recurring events as they occur in the case of each judge: 'The children of Israel did that which was evil in the sight of the Lord . . . and they forsook the Lord . . . and the anger of the Lord was kindled against Israel and he delivered them into the hands of spoilers . . . and they were sore distressed. . . . And the Lord raised them up judges . . . and saved them out of the hands of their enemies all the days of the judge. . . . And it came to pass when the judge was dead that they returned and corrupted themselves more than their fathers.' The final redaction of this section is due to a Deuteronomistic editor, who provided the setting but did not alter the text. (3) The last 5 chapters, xvii.-xxi., consist of various incidents of the same period, but in no way connected with the earlier narratives. See W. O. Oesterley and T. H. Robinson, *A History of Israel*, 1932, and C. F. Burney, *Judges*, 1922.

**Judgment**, in law, the decision of a court of law in any cause heard therein. Final J. disposes of the case, subject to any right of appeal; an interlocutory or interim J., such as the grant of an injunction (q.v.) in the Chancery Div., disposes only of a particular issue, leaving the merits to be adjudicated at some other time or, as in the grant of a mandamus (q.v.), in another and inferior court (q.v.). A J. binds only the parties to the particular case. A J. summons is one which follows non-compliance with a default summons by a debtor who, in the court's opinion, can but will not pay his debt; it asks the court to make an order for payment subject, on further default, to committal to prison.

**Judgment**, in philosophy, broadly the faculty which enables a person to arrive at the truth or at what any particular school of philosophy may consider to be the truth. In ethics it denotes the faculty of distinguishing between right and wrong conduct. In metaphysics a proposition which, by its mere suggestion, is conceived as *necessary* is an *a priori* J., and if derived from nothing else than another necessary proposition it is called an absolutely *a priori* J. These terms are

used in the Kantian philosophy in the differentiation between knowledge gained by experience and *a priori* knowledge. In Kant's philosophy the J.s of experience are never truly and strictly universal, but possess only the comparative universality of induction; i.e. experience can only tell us that, so far as our observation goes, a particular result will follow from a particular combination of circumstances. But necessity and strict universality are sure criteria of *a priori* knowledge. Hume, arguing from this position, had asserted that necessary and universal J.s could not exist as valid knowledge by reason of their very necessity and universality, but were rather the effect of an association of ideas. Kant, however, accepting the validity of

on (1) many parables and other statements of Christ; (2) 2 Cor. v. 10; (3) Rev. xx. 12 ff. Belief in a F. J. formed a part of Jewish teaching developed from prophetic teaching about the Day of the Lord. Originally a judgment in the course of earthly hist., it was connected with the Messianic hope of the coming of the Kingdom, and developed by the apocalyptists into a real eschatology. Zoroaster (q.v.) also taught a remarkable doctrine of the F. J. See also HEAVEN; HELL; PURGATORY.

**Judicature Acts.** These comprise the J. A. 1873, 1874, 1875, 1877, 1878, 1879, 1881, 1883, 1884, and the Appellate Jurisdiction Act, 1876. The main purpose of these Acts may be summarised as follows: (1) the abolition of archaic forms of



D. McLeish

## THE LAST JUDGMENT

One of many similar representations of the Last Judgment in France. This appears over the main portal of Bourges Cathedral.

universal J.s. contends that they do in fact superadd something to our sum total of knowledge, and, after arguing the possibility of passing J.s going beyond the range of experience from the otherwise very impossibility of experience itself, goes on to show the bearing of such *intellectual* J.s upon the supersensible world or the ultimate problems of metaphysics—God, freedom, and universality.

**Judgment, The Final.** According to Rom. Catholic theology every soul individually, at the instant of death, is committed by God to its final destiny, in what is called a *private judgment*. The term F. J., however, is more commonly applied to the *general judgment*, a public vindication of God's justice which is to take place at the end of the world. At that moment the dead will rise again with bodies transformed like Christ's at His Resurrection, a transformation which will affect the living also. Then all alike will behold the everlasting fate of each and every one. The doctrine is found in the Nicene Creed, which states that Christ 'shall come again with glory to judge both the quick and the dead.' This belief is founded upon Scripture, and in particular

pleading (q.v.) which often defeated valid claims for absurd technical reasons; (2) the fusion of administration of common law and equity; (3) the setting up of the Supreme Court of Judicature comprising the Court of Appeal and the Queen's Bench, Chancery, and Probate, Divorce, and Admiralty Divs. of the High Court. See CHANCERY and EQUITY.

**Judicial Committee of the Privy Council.** Like the ultimate Court of Appeal in civil causes—the House of Lords or Lords of Appeal in Ordinary—the J. C. of the P. C. has really nothing to do with the body of which it is in theory a committee. In its present form it dates from 1833, when its constitution was strengthened by the addition of colonial and Indian judges, in order to meet the difficulty arising from the difference between Eng. laws and those of the colonies. As long ago as 1580 the right of appeal to the Queen in Council was recognised in the case of the *Chancellor*. The Lord President of the Council is technically the head of the J. C. and there are a number of judges holding other offices who, as privy councillors, are technically members. In practice a panel is usually drawn from the following: the

Lord Chancellor, the 7 Lords of Appeal in Ordinary, and, prior to the Indian Independence Act, 1947, certain judges of Indian experience who sat for the hearing of Indian appeals only. There are also a number of judges of the courts of the dominions overseas who are members, though they do not often sit. In theory the J. C. does not pronounce judgment, but merely advises the sovereign to give judgment in a particular way, a harmless fiction that finds its parallel in the conventional duty of the members not to disclose their differences of opinion in submitting their 'advice' to the Crown. Appeals in criminal cases can only be brought to the J. C. by special leave of the committee itself. The committee also hears appeals from the eccles. courts and from the prize courts, and in this connection provision is made for the attendance of prelates and naval experts, respectively, as assessors. The J. C. of the P. C. hears appeals from Australia, New Zealand, and the colonies.

**Judicial Factor**, see FACTOR, JUDICIAL.

**Judicial Separation.** Decree for J. S. or divorce *a mensa et thoro* is a remedy for certain matrimonial offences which, unlike a decree of dissolution of marriage (divorce *a matrimonii vinculo*), does not leave the parties at liberty to marry again. A J. S. may be obtained by either spouse on these grounds: (1) adultery; (2) cruelty; (3) under section 16 of the Matrimonial Causes Act, 1857, for desertion without cause for 2 years or upwards; (4) for statutory desertion under section 5 of the Matrimonial Causes Act, 1884, that is, where the respondent to the petition for J. S. has failed to obey a previous order of the court for restitution of conjugal rights. Against a husband J. S. may also be obtained on the ground of sodomy or an attempt to commit that offence. Acts of cruelty to children may amount to cruelty to the wife, when committed by the husband in the presence of the wife and for the purpose of giving her pain (*F. v. F.*, 38, T. L. R., decided in 1922). Desertion has only been a ground of petition for divorce or J. S. since the Matrimonial Causes Act, 1857, for in the eccles. courts it was only recognised as a ground for restitution of conjugal rights. Where a decree is pronounced against a wife for adultery, and she has property in possession or reversion, the court may compel a settlement of as much of the property as it deems reasonable for the benefit of the husband or the children of the marriage. The petitioner for J. S. must, as in the case of a suit for dissolution, jactitation (q.v.), and nullity, file together with the petition an affidavit stating that there is no collusion (q.v.) or connivance between the 2 spouses. Where a wife gets a J. S. she may apply for petition for permanent alimony (financial support from the husband) provided she gives the husband 8 days' notice prior to her application. The court, even before the decree for J. S. has been made final, may make such orders as it thinks fit for the custody, maintenance, access,

and education of the children of the marriage, together with provision for their support when the final decree is pronounced. Incidentally to these purposes the court has power to vary the terms of settlements of property on the respondent. The defences to a suit for J. S. are as in a suit for dissolution: (a) connivance at adultery; (b) condonation of adultery; (c) collusion; (d) adultery, desertion, etc., not proven. Connivance, generally speaking, means acquiescence in adulterous intercourse by wilful abstention from taking any steps to prevent it. Cruelty and desertion, however much they may induce a wife to become unfaithful, do not amount to connivance in law. Condonation implies a conditional forgiveness with a full knowledge of all antecedent guilt, the condition being that the offence shall not be repeated, or, as it has been expressed, a complete blotting out of conjugal offence followed by cohabitation with full knowledge of all the circumstances. There is no narrow definition of collusion, but it exists where the originating of the petition is founded on an agreement between the parties or their agents. A suit for J. S. may be compromised by agreement, and neither party is at liberty to repudiate the agreement, except on the ground of fraud, or of such an error in its terms that they ought not to be bound by it. This principle was confirmed in the Court of Appeal in 1922. (*See Brown and Watts on Divorce*, 10th ed., 1924.) Where the court grants the decree, it is of course no longer obligatory for petitioner to cohabit with respondent. The grant of the decree does not bar presentation of a petition for divorce upon substantially the same facts.

'Judith,' O.E. poem of about AD 900, found in the same MS. as *Beowulf* (q.v.). Only about 350 lines remain, and the author is unknown. Its theme is taken from the story of J. in the Apocrypha, and the treatment is vivid in the extreme, the story being told as if it were contemporary. The metre is the usual O.E. alliterative verse, but is varied towards the end by lines of extra length. *See* ed. by B. J. Timmer, 1952.

**Judo**, see JU-JITSU.

**Judson, Adoniram** (1788-1850), Amer. missionary, b. Malden, Massachusetts. After graduating at Brown Univ. (1807) he studied at the Andover Theological Seminary and became a Congregational minister. He sailed for Burma in 1812, and on the voyage joined the Baptist Church. He and his wife settled in Rangoon, but subsequently moved to Ava, where J. was imprisoned during the Burmese war. His trans. of the Bible into Burmese was completed in 1833, and was followed by a *Burmese-English Dictionary*. *See* lives by F. Wayland, 1853; R. Middleditch, 1859, and his son E. Judson, 1883; also Honoré Morrow, *The Splendour of God*, 1929.

**Juel, Niels** (1629-97), Dan. admiral, b. Christiania. He served under Tromp and de Ruyter fighting in the war with England (1652-4). He subsequently took

part in the Swedo-Dan. wars (1658-60), and in the Scanian war (the Scania were a Swedish political party) when he was appointed to the supreme command in 1673. He was victorious at Jasmund (1676) and at the Bay of Kjöge (1677), when he distinguished himself by his brilliant tactics.

**Jugdalak**, or **Jagdalk**, vil. and pass situated between Kabul and Jalalabad, Afghanistan.

**Jugerum**, Rom. land unit, = 2 actus quadrati = 28,800 Rom. sq. ft = 100 Eng. sq. poles =  $\frac{1}{4}$  ac. The side of a square J., therefore, measured 10 poles = 100 Sumerian cubits = 96 royal cubits. See A. E. Herriman, *Historical Metrology*, 1953. See also METROLOGY.

**Juggernaut**, or **Puri**, tn situated on the Orissa coast, India. It is one of the holy places of India, and in addition to its having for a number of cents. preserved the Golden Tooth of Buddha, it is famous for a temple built in honour of Vishnu, and in which was his idol. The name given to this idol was Jagannath or J. ('lord of the world'), and it was the representation of a god of the people. Sev. festivals are celebrated in his honour each year, the chief one being that of the car. The ceremony consists in drawing the god on a huge car to a place near by, the journey extending over sev. days. Large numbers of pilgrims assemble in the tn for this purpose, and as some are killed during the journey the belief has become current that it is customary for them to throw themselves under the car. This, however, has been contradicted.

**Juggling** is very much the same as conjuring, prestidigitation, and legerdemain. 'Jugler' is the Eng. form of the Lat. *joculator* (jester), whilst *jongleur* (q.v.), which was used in the Middle Ages of a strolling singer or minstrel, is the Fr. equivalent. J. can be traced back to the days of the anc. Chaldees and Egyptians. The magicians of Pharaoh, Jannes and Jambres, tried to outdo the miracle of Moses; and Zoroaster, who reformed the Magi, was famous for his marvellous feats. Equally so was Paracelsus of a later day (1493-1541). The Greeks and Romans were no strangers to sleight of hand, and among the latter the so-called *acetabularii* performed wonderful tricks with tiny pebbles, whilst *ventilatores* (knife-throwers) and *pilarii* (ball-players) were professional entertainers in the imperial days. Massenet's pathetic opera, *Le Jongleur de Notre Dame*, gives an idyllic picture of a wandering juggler in the great monastic days, and in olden times no country fair was complete without its conjurers and tricksters, and no vil. was for long without its afternoon's entertainment in the form of the knife-swallowings and ball-tossings of some needy and itinerant merry-andrew. In Hocus Pocus' *Anatomy of Legerdemaine*, 1634, there is mention of 'the greatest juggler in England,' who 'used the assistance of a familiar; he lived,' we are told, 'a tinker by trade, and used his feats as a trade by the by; he lived . . . always botattered, and died, for ought I

could hear, in the same estate.' Jonas, Androletti, and Carloti enjoyed high reputations as conjurers in Paris during the 18th cent., and about 1783 the Italian Pinetti began to give his sensational exhibitions of legerdemain. In modern times the Indians and Chinese have surpassed W. peoples in the ingenuity of their impostures and in the marvellous skill with which they juggle with fire, rings, knives, balls, and swords—conjuring properties which seem more especially to form the stock-in-trade of the professional juggler. See CONJURING and DEVANT, DAVID.

**Jugs**, see JOUGS.

**Juglans**, family Juglandaceae, genus of about 16 deciduous trees of N. lands. *J. regia*, the common walnut of E. Europe, provides fine timber for cabinet-making, and edible nuts, yielding oil. *J. nigra*, black walnut of E. America, is a valuable timber species; *J. cathayensis* is the Chinese walnut, *J. mandshurica* the Manchurian walnut, and *J. cinerea* the Butternut of N. America, yielding sweet nuts.

**Jugoslavia**, see YUGOSLAVIA.

**Jugular Veins**, **The**. Their number varies in different individuals, but the 4 chief ones are: (a) the *external jugular*, which can usually be seen through the skin and muscle on the side of the neck. It runs in a line drawn from the angle of the jaw and eventually pierces the deep fascia above the middle of the clavicle and joins the *subclavian*. It receives its blood from the scalp and deeper parts of the face. (b) *Anterior jugular*, smaller, runs about half an inch from the middle line of the neck. (c) *Posterior jugular*, collecting from the neck. (d) *Internal jugular*, uniting at the root of the neck with the subclavian to form the *vena innominata*; its blood is obtained from the superficial parts of the face and the deeper parts of the cranium. 'Cutting the throat' usually results in injuries to one or more of these veins. A severance of the *internal* is critical, and in the case of div. of any of the J. V. death may follow from the admission of air to the cardiac cavities.

In the development of the embryo the *primitive jugular* represents the *anterior cardinal* of the 2 longitudinal vein trunks formed by the junction of veins from body segments. It receives fewer segmental veins than the *posterior cardinal* as the first site of the heart is in that portion which later becomes the neck of the embryo.

**Jugurtha** (d. 104 BC), Numidian king, natural son of Mastanabal and grandson of Masinissa (q.v.). He was brought up by his uncle, Micipsa (q.v.), who left his kingdom (118) to J. and his 2 sons, Hiempsal and Adherbal. J., greedy for supreme authority, determined to get rid of his cousins, and assassinated Hiempsal. The Rom. Senate decreed that the kingdom should be equally divided between J. and Adherbal, but in 112 the former had Adherbal put to death. War was now declared between Rome and Numidia, J.

having attacked the It. inhab. of Cirta. J. drove the Rom. troops out of his kingdom (110), and in the following year fresh troops were sent from Rome, under Q. Caecilius Metellus, who was victorious at Nuthul. Metellus was superseded by Marius in 107; J. now made an alliance with his father-in-law, Bocchus, and on their united forces being defeated withdrew into the deserts of the interior. Bocchus made his peace with Rome by betraying his relative, and delivered J. up in chains to Sulla, the quaestor (106). Marius led his prisoner in triumph through Rome (104), and afterwards had him strangled in prison. The hist. of the Jugurthian war was written by Sallust.

Ju-jitsu, Jiu-jitsu, or Ju-jutsu are various ways of spelling the Eng. form of a Jap. word signifying the national art of self-defence without weapons. The word means 'gentle art' or is sometimes trans. as 'to conquer by yielding,' from the Jap. word *ju* (pliant); the latter interpretation is certainly a good description of the art whatever its etymological verity. J. was introduced into Japan in the middle of the 17th cent. by Ching Gem Ping, a naturalised Chinese. Until the break-up of the feudal system in Japan, J., or as it was also called, *Taijutsu* or *yawara*, was a secret art practised only by the *samurai*, the warriors of Japan. By means of this acquired skill they were not only able to assert their authority over the common people without the use of the swords which they alone were allowed to carry, but they were doubly equipped for mortal combat. Since the sweeping constitutional and social changes in Japan, however, it has been possible to teach the art to all who wish to learn. After the Meiji Restoration in 1868, J. was somewhat neglected for a time though many training schools continued in existence. It was revived by Jigoro Kano, who introduced it in a new form to which he gave the name *judo* and which was based on modifications of the traditional techniques. He rendered the sport less dangerous by eliminating techniques devised to kill or seriously to cripple an opponent and he also laid great emphasis on the spiritual value of judo training. Kano was later the principal of Tokyo Higher Normal School, a member of the Olympic Committee, and eventually a member of the House of Lords. He also founded the Kodokan in Tokyo in 1882, a famous judo school which is now the centre of the judo world. The art of judo like J. lies in an ability to utilise the power of an opponent to one's own advantage so that size and strength are not necessarily a prerequisite of victory. Judo techniques are divided into 3 groups: *nage-waza*, throwing an opponent to the ground, *katame-waza*, getting a grip on an opponent so that he cannot move or resist, and *ate-waza*, temporarily incapacitating for action by a blow or kick at an important nerve point. A knowledge of first-aid forms part of the training. Judo experts are divided into 10 *dan* or grades, for which diplomas and belts are awarded. Mr Kyuzo Mifune, the leading

judoman at the Kodokan in Tokyo is the sole holder of the tenth grade. Judo has achieved world-wide popularity and judo schools are now to be found in most countries in Europe and the Amer. continent; it is especially popular in France. There are about 150 trainees in Britain. See H. H. Skinner, *Jiu-jitsu*, 1904; H. J. Hancock, *Complete Kano Ju-jitsu* (Juido), 1905; K. Saito, *Ju-jitsu Tricks*, 1905; Mrs R. Watts, *Ju-jitsu*, 1906; S. K. Uyenishi, *Ju-jitsu*, 1906; J. Kano, *Judo*, 1937; E. N. Dornay, *The Art of Judo*, 1954.

Ju-ju, word used by Africans of the Guinea Coast for a fetish (q.v.), perhaps adopted from Fr. *joujou*, a toy, or corrupted from Mandingo *grugru*, a charm. J., besides denoting the shrine, idol, or charm in which a spirit is supposed to dwell, was applied to the spirit itself, and so loosely to witchcraft, rites, and customs characteristic of the Negroes. The 'Long Ju-Ju' of the Aro clan of the Nigerian Ibo was a sacred shrine where human beings were sacrificed until the Brit. interfered (1901-2). See P. A. Talbot, *Peoples of Southern Nigeria*, 1926, and K. O. Dike, *Trade and Politics in the Niger Delta*, 1956.

Jujube, name of sev. plants of the genus *Zizyphus* in the family Rhamnaceae, which consists of shrubs and small trees found in the tropics. Many of the species bear edible fruits, and these are sometimes dried and used as sweetmeats. *Z. jujuba*, the common or Fr. J., flourishes in the E. and produces a small red or yellow fruit; *Z. lotus*, the lotus, bears a small, sweet fruit said to be the lotus fruit known to antiquity; *Z. spina-Christi*, Christ's Thorn, is fabled to have yielded the crown of thorns; the thorns are modified stipules. The confection known as J. is made of gum arabic or gelatine, glycerine, and pure sugar, and is flavoured like the J. fruit.

Jujuy: 1. Prov. of Argentina, situated in the NW., and having Bolivia on its N. and W. sides. Its area is 22,962 sq. m. Part of the surface is mountainous, rising to a height of over 15,000 ft. The prin. riv. is the San Francisco with its tribs. The state is rich in mineral wealth, and is a valuable source of revenue. Gold, petroleum, lime, gypsum, lead, iron, china-clay, and useful salts are worked. Agriculture is largely carried on and sugarcane is grown. Fruit grows prolifically and there is a large export trade in oranges. Pop. 225,130.

2. Cap. of the above prov., on the railway from Buenos Aires to Bolivia; possesses a national college and a school for girls. An old colonial city of strong Indian attachments. Pop. 31,000. See H. J. Muir, *Hoo Hoocy*, 1947.

Jukes, Joseph Beets (1811-69), geologist, b. Summer Hill, near Birmingham, and educ. at St John's College, Cambridge. Was appointed geological surveyor of Newfoundland (1839-40). In 1842 he joined an expedition to Torres Strait, New Guinea, and the E. coast of Australia, and on his return to England in 1846 took part in the work of the Geological Survey in N. Wales, becoming local Director of

the Survey in Ireland in 1850. He lectured on his subject at Dublin, and pub. a valuable text-book, *The Student's Manual*, 1857. His other writings include *Excursions in and about Newfoundland*, 1842, and *A Sketch of the Physical Structure of Australia*, 1850. His writings throw light on cleavage, the Devonian system, elvans, Silurian granite, trough-faults, and numerous other subjects of geological interest. His *Letters* were ed. by his sister, C. A. Browne, in 1871.

**Jukun**, Negro people of E. Nigeria, famed for their belief in divine kingship. The king is equated or associated with the moon, and is supposed to have a personal influence over the course of nature. By J. tradition he is allowed to rule for only 7 years; then, or previously if he has become weak and so liable to influence the crops badly, he is strangled. To-day the royal practices are largely in desuetude. See C. K. Meek, *A Sudanese Kingdom*, 1931.

**Julfa**, Armenian suburb of Isfahan (q.v.) in Persia.

**Julia**, name of sev. Rom. women of rank, belonging to the gens Julia: (1) Sister of Julius Caesar, wife of M. Atilius Balbus and grandmother of Augustus. (2) (d. 54 BC) Daughter of Julius Caesar by Cornelia. She married Pompey in 59. (3) (39 BC-AD 14) Daughter of Augustus by Scribonia. In 25 she married her cousin, M. Marcellus, who died 2 years later. She then married M. Agrippa, by whom she had 5 children, Caius and Lucius Caesar, Agrippa Postumus, Julia, and Agrippina. Her third marriage, in 12 BC, was to Tiberius Nero, who was afterwards emperor. In 2 BC Augustus banished her to Pandataria, an is. off Campania, on account of her adulteries, and she was subsequently removed to Rhegium, where she died. (4) (d. AD 28) Daughter of the above, and wife of L. Aemilius Paulus. Like her mother she was notoriously immoral, and was banished by Augustus to Tremerus, an is. off Apulia, in AD 9. (5) The youngest daughter of Germanicus and Agrippina, murdered by Claudius at the instigation of Messalina. (6) (d. AD 59) Daughter of Drusus and Livia, sister of Germanicus, also killed by Claudius at Messalina's instigation.

**Julia Concordia**, see PORTOGRUARO.

**Julia Gens**, famous patrician clan of ant. Rome of which the most notable family was that of Caesar. It claimed descent from Julius (sometimes called Ascanius), the son of Aeneas and grandson of Venus and Anchises. Julius is supposed to have founded Alba Longa, so that the family came of Alban stock. On the destruction of that city the J. G. was removed to Rome by Tullus Hostilius.

**Julia Joza**, or **Transducta**, see TARIFA.

**Julia Obsequens**, see PISA.

**Julia Pisana**, see PISA.

**Julia Romula**, see SEVILLA.

**Julia Septimana Bitterae**, see BÉZIERS.

**Julia Transducta**, see TARIFA.

**Julia bona**, see LILLEBONNE.

**Julia eum**, see JÜLICH.

**Julian**, or **Juliana**, of Norwich (c. 1342-c. 1413), anchoress and mystic. She was probably a Benedictine nun, living as a recluse in Norwich. Her *Revelations of Divine Love* are the most perfect fruit of medieval mysticism in England. See ed. by G. Warrack, 1949, and modernised ed. by R. Huddleston, 1952. See studies by P. F. Chambers, 1955, and P. Molinari, 1958.

**Julian (Flavius Claudius Julianus)**, surnamed the **Apostate** (331-63), Rom. emperor, b. Constantinople, being the youngest son of Julius Constantius and Basilina, and the nephew of Constantine the Great. On the death of Constantine in 337, at the instigation of his 3 sons, a terrible massacre took place in which J. and his elder half-brother, Gallus, alone escaped the fate of their kinsfolk. Educated under strict supervision at Nicomedia, until 344, he and his brother were removed to Macellum in Cappadocia. In early life he became greatly attached to Gk culture, and secretly abandoned Christianity. In 355 J. was created Caesar at Milan by the Emperor Constantius II, whose sister Helena (q.v.) he married. Thereupon J. was entrusted with the government of Gaul, and in 357 won a great battle against the Alemanni at Strasburg. He took up his residence in Lutetia (Paris), wisely administered the laws, and relieved the people of some of the heavy taxes. The emperor, becoming jealous of his increasing popularity, bade him lead his troops against the Persians, whereupon his soldiers proclaimed him Augustus (360). Constantius opportunely died in 361, and J. was universally acknowledged his successor. He now openly declared his apostasy, and proclaimed universal toleration within his realms; but he deprived the Church of its former privileges, forbade Christians to teach rhetoric, and in the offices of state gave preference to pagans. Before long, he made great preparations for an invasion of Persia, and marched through Antioch into Mesopotamia and Assyria, until he reached the walls of Ctesiphon (363). He was misled by the treachery of a Persian nobleman who advised him to march inland to meet the forces of Shapur II. His men suffered terribly from thirst and were overcome by the heat. During the battle, J. fell, and as he died, is supposed to have cried out, 'Thou hast conquered, O Gallilean.' His extant writings are *The Caesars* (a satire in Senecan vein on the Caesars), *Misopogon*, 8 *Orations* (being panegyrics on Constantius and the Empress Eusebia, and comments on the philosophy of the Cynics) and a series of letters numbering upwards of 70, though the authenticity of some is disputed. His treatise *Against the Christians* is lost. See Gibbon, *Decline and Fall*, xix, xxi-xxiv, and J. Bidez, *Vie de Julien*, 1930.

**Julian Calendar**, epoch, see CALENDAR.

**Juliana** (1909- ), Queen of the Netherlands. Juliana Louisa Emma Maria Wilhelmina is the only child of Queen Wilhelmina and Prince Heinrich of Mecklenburg-Schwerin. She married



Prince Bernhard von Lippe-Biesterfeld, Jan. 1937. In 1948 she succeeded to the throne on the abdication of her mother. The heir-presumptive is her eldest daughter, Princess Beatrix Wilhelmina Amélie (1938- ); her other daughters are Princess Irene (1939- ); Princess Margriet (1943- ), b. in Canada; and Princess Maria (Marjke) (1947- ). Queen J. and her family came to England in 1940, going later to Canada, but returned to the Netherlands after the liberation in 1945.

**Julianus, Salvius** (b. c. AD 100), Rom. jurist, who lived during the reigns of Hadrian and the Antonines. By order of Hadrian, he was entrusted with the work of drawing up the *edictum perpetuum* from the immense mass of laws and praetors' edicts which existed at the time. His other works include *Digestorum Libri XC*, *Ad Minucium*, and *De Ambiguitatibus Liber Singularis*. He held the position of praefectus urbi, and was twice consul.

**Jüllöh** (ancient Julliaum), Ger. tn in the Land of N. Rhine-Westphalia (q.v.), on the r. b. of the Roer, 27 m. SW. of Düsseldorf (q.v.). It was once the seat of the dukes of Aix-la-Chapelle (see AACHEN). J. was a strong fortress in the 17th cent., but was taken by Maurice of Orange (q.v.) in 1610, and by the Sp. a few years later. Its fortifications were demolished in 1860. During the Second World War it was the scene of heavy fighting in Feb. 1945, when the Amer. 9th Army was ordered to hold a front on the Roer from J. to Roermond (q.v.). The riv. was swollen, and it was not until 23 Feb. that the floods subsided sufficiently for 2 corps of the army to cross. A corps of the Amer. 1st Army simultaneously attacked over the Roer S. of Düren (q.v.). J. was taken on 24 Feb., and it was then (due to bombing, as well as ground fighting) almost completely in ruins. It has since been rebuilt, but of its ancient monuments only the ruins of the vast citadel, and a 13th-cent. tower, the *Hezenturm*, remain. It has paper, sugar, and leather manufs. Pop. 12,000. See WESTERN FRONT IN SECOND WORLD WAR.

**Julien, Stanislas-Aignan** (1799-1873), Fr. sinologist. He was a pupil of Abel Remusat and in 1832 became his successor in the chair of Chinese (which he held 40 years) at the Collège de France. Later he became keeper of the Royal Library (1839) and head of the Collège Impériale (1854). He trans. into Fr. sev. Chinese romances and novels as well as Taoist texts, his trans. being a model of accuracy. He also wrote a *Syntaxe nouvelle de la langue Chinoise* (1869), and various important pubs. on Chinese contributions to technology.

**Julier Pass**, Alpine pass in the canton of Grisons, Switzerland. It connects the Rhine Valley with the Upper Engadine, and has an altitude of 7500 ft.

**Juliobriga**, see BRAGANÇA.

**Julius**, name of 3 popes:

**Julius I, Saint** (337-52). In the Arian controversy he gave unwavering support to Athanasius.

**Julius II (Giuliano della Rovere)** (1503-1513), nephew of Sixtus IV, b. Albissola, near Savona, in 1443. During his uncle's pontificate he received many honours, and was sent as legate to France (1480), where he acquired great political influence. On his election to the pontificate he recovered Romagna from the Borgias, and devoted all his energies to suppressing nepotism and extending the temporal possessions of the Church. In 1508 he joined the League of Cambrai with Maximilian, Ferdinand, and Louis XII against Venice; but on the submission of that rep. he joined the Holy League directed against Louis (1510). J. condemned duelling (1509) and simony (1513), sent missionaries to India, Africa, and America, and was a liberal patron of the fine arts. See lives by A. Dumesnil, 1873, and M. Brosch, 1878, also L. Pastor, *History of the Popes* (trans.), 1898, and C. Stange, *Erasmus und Julius II: eine Legende*, 1937.

**Julius III (Giovanni Maria del Monte)** (1550-5), b. Rome in 1487. He was one of the 3 legates under whom the Council of Trent (1545) was opened. He sent Cardinal Pole to England to negotiate with Mary for the reconciliation of her kingdom with Rome. He was by nature pleasure-loving, and was guilty of the charge of nepotism. See L. von Ranke, *History of the Popes* (trans.), 1840-83, and L. Pastor, *History of the Popes* (Eng. trans.), 1898.

**Julian, Camille** (1859-1933), Fr. historian, b. Marseilles. His most notable work was *Histoire de la Gaule* (8 vols.), 1907-28. Other works include *Histoire de Bordeaux*, 1895, *Vercingetorix*, 1901, *De la Gaule à la France*, 1922, and *Au Seuil de notre histoire* (I.-III.), 1930 ff. See life by A. Creuier, 1945.

**Julien, Louis Antoine** (1812-60), Fr. musical conductor, originally Julien, b. Sisteron, Basses Alpes. He became a conductor of concerts in Paris (1836), came to London (1839), where he estab. promenade concerts, and travelled in the Brit. Isles and America. His light attractive promenade concerts drew large audiences, and his 'Monster Quadrilles' were very popular. But his sensational success was due to his eccentric behaviour and superficial musical gifts. He became bankrupt (1857) and ultimately returned to Paris, where he was arrested for debt (1859) and d. insane.

**Jullundur, or Jalandhar**, large city of E. Punjab State, India, some 50 m. E. of Amritsar. There was an ancient city here, mentioned in the 7th cent. AD, but practically nothing of it remains.

**Julus**, or **Iulus**, genus of myriapods of the order Chilognatha, and the species are often known as galley-worms. The number of body segments varies between 40 and 50, many of which have 2 pairs of legs.

**July**, seventh month by our modern reckoning. In the old calendar, when the year began either with the vernal equinox or on 1 Mar., it was, of course, the fifth month, and therefore called *Quintilis* by the Romans. In honour of Julius Caesar,

whose birthday fell on the 12th, it was named *Julius* in the last year of his life. Dog days (q.v.) begin on the 3rd.

**Jumada I and II**, months of the Mohammedan calendar following Rabi'a II.

**Jumet**, tn in the prov. of Hainaut, Belgium, 3 m. N. of Charleroi. There are coal mines and sandstone quarries. Its chief industries are iron and copper foundries, glass-works, breweries, and distilleries. Pop. (1955) 29,000.

**Jumièges**, Robert of (fl. 1037-52), Archbishop of Canterbury. He was b. in Normandy and came to England with Edward the Confessor, 1043. In 1044 he became Bishop of London, and in 1051 was appointed Archbishop of Canterbury. He led the opposition to Godwin and was instrumental in obtaining Godwin's banishment, but on the latter's return from exile in 1052, Robert had to flee to Jumièges, where he d.

**Jumièges**, William of, Norman monk, remembered for his compilation of a list of the dukes of Normandy down to 1071. This book, written in Latin, is in J. P. Migne's *Patrologiae Cursus Completus*.

**Jumièges**, Fr. vii. in the dept of Seine-Inférieure, between the forest of J. and the r. b. of the Seine. It is famous for the ruins of its great Benedictine abbey, founded in 654. The adjoining church of St Pierre is a continuation of a church of Charlemagne's time. Pop. 880.

**Jumilla**, Sp. tn in the prov. of Murcia. It has a fortress, and a trade in wine, brandy, oil, and esparto. Pop. 22,000.

**Jumna**, one of the great rivs. of N. India, and a prin. trib. of the R. Ganges. It rises near Jammu in the Himalaya and debouches into the plain N. of Dehra Dun. It then flows S. gradually nearing the Ganges, which it joins 3 m. S. of Allahabad. It is about 860 m. in length and feeds large irrigation canals. Among the important tns on its banks are Delhi, Agra, and Allahabad.

**Jumping**, see **ATHLETICS**.

**Jumping Beans**, seeds of *Sebastiania* species of plants, infested by the grubs of a small moth, *Cydia saltitans*, which move within and cause the seeds to jump.

**Jumping Hare**, or *Pedetes cafer*, called by the Dutch **Spring Haas**, rodent of S. Africa and a member of the family *Pedetidae*, being the only species of the genus *Pedetes*. The head of the animal resembles that of a hare, but its general appearance and movements are like those of a jerboa, though it is larger. Its chief characteristics are its long tail, 5 toes to the fore feet and 4 on the hind, and hind limbs much longer than the fore limbs, thus enabling it to make immense leaps. It is a nocturnal animal, feeding on roots, grass, etc.

**Jumping Mouse**, or *Zapus hudsonius*, member of the jerboa family (*Dipodidae*) and a native of N. America. It resembles a mouse, having a long tail and its hind limbs longer than the fore limbs, enabling it to leap in the same way as the other species of *Dipodidae*.

**Junagadh**, former princely state of India, in Kathiawar Peninsula. At partition

the Nawab, a Muslim, declared that the state would join Pakistan, but the great majority of the inhab. being Hindus, the Indian Gov. refused to recognise the accession, and ultimately the state was incorporated in Saurashtra. The tn of J. is an anct one, the present port having been built about 1475. The state contains remarkable monastic caves, some of them dating from the time of Asoka (c. 250 bc). The outstanding feature is Girnar (q.v.), a mt of 3600 ft which is studded with temples and shrines of great antiquity. Here also is an Asoka Stone, bearing the Fourteen Edicts of Asoka.

**Junca**, Étienne du, see **IRON MASK**.

**Juncaceae**, family of monocotyledons, about 300 species of perennial herbs, which contains the rushes; natives of cold, damp parts of temperate and arctic regions. The inflorescence is cymose (see **INFLORESCENCE**) and consists of hermaphrodite flowers; the perianth is sepaloid and in 2 whorls of 3, the stamens are also in 2 whorls of 3, or only the outer whorl may be present; the ovary is superior and consists of 3 united carpels usually containing numerous ovules; the fruit is a loculicidal capsule. The genera include *Prionium*, *Juncus*, *Kingia*, and *Luzula*.

**Juncaginaceae**, family of small and unimportant monocotyledonous plants, is found in temperate lands, and consists of 4 genera of marsh-herbs. The chief genus is *Triglochin* (arrow-grass) (q.v.).

**Juncus**, chief genus of Juncaceae, contains over 220 species, 18 of which occur in Britain. These rushes are cosmopolitan in distribution and frequent damp, cold localities; in habit they are rigid, with slender stems which may contain pith or may be hollow: the flowers are small, green or brown in colour, and are borne in dense heads or panicles; pollination is effected by means of the wind. The economic importance of J. is slight; *J. squarrosus* forms a pasturage for sheep in hilly dists. of Britain; other species are used to fix the soil on riv.-banks; chair-bottoms, matting, and baskets are made from the long, flat leaves, and the pith forms the wick of rush-lights still used in Europe and in China.

**June**, sixth month by our modern reckoning. In the old calendar it was the fourth month. According to Ovid it was named after Juno (q.v.), the guardian of women, her month being regarded as favourable for marriage. In the Rom. calendar it was the fourth month and originally had 26 days, but later 29; to these Julius Caesar added one at the time of his reform of the calendar. Midsummer day falls on the 24th.

**Juneau**, cap. of Alaska, U.S.A., situated opposite Douglas Is. on Gastineau Channel. It has salmon canneries and lumber mills, and is the supply centre for a gold-mining, fur-farming region. It has an airport, seaplane base, and territorial and federal offices. J. is a sea- and fishing-port, ice-free all the year round. There are a public library, public schools, and 2 daily newspapers. Pop. about 6000.

**June**, tn in New S. Wales, Australia,

300 m. SW. of Sydney, in a fertile agric. and pastoral dist. It is an important railway junction. Pop. 4070.

**Jung, Carl Gustav** (1875- ), Swiss psychologist and psychiatrist, b. Kesswil. He studied medicine at Basel, where he graduated M.D. 1900. Deciding to specialise in mental disease, he spent the next 8 years working with Eugen Bleuler (q.v.) at the Burghölzli Hospital in Zürich. Here he made intensive physiological and psychological studies of patients with mental disorders, 'to detect the intruders of the mind.' In 1906 he pub. *Psychology of Dementia Praecox*, a study of schizophrenia which estab. his reputation as a pioneer. For many years he lectured on psychiatry at Zürich Univ. and was prof. of psychology there, 1933-41. He was among the first to support Freud's views on psycho-analysis and for a time they worked on parallel lines, but later J.'s opinions diverged considerably and thereafter the two worked apart. J.'s most notable contribution has been his study of the unconscious mind, in which he recognizes 2 divs.—the personal unconscious and the collective unconscious. He founded a school of analytical psychology in which the aim of therapy is to bring about a state of mind where the patient begins to experiment with his own nature. Hence J.'s emphasis on dreams as an indication of the direction in which the unconscious is moving, and on art therapy; but his greatness lies less in devising therapeutic tools than in the light he has thrown upon the hinterland of the mind. He ranks with Freud and Adler as a pioneer of psychiatry. His most important work is probably *The Psychology of the Unconscious*, 1916; other valuable contributions include *The Theory of Psycho-analysis*, 1912, *Collected Papers on Analytical Psychology*, 1917, *Psychological Types*, 1923, *Contributions to Analytical Psychology*, 1928, *Modern Man in Search of a Soul*, 1933, and *The Integration of the Personality*, 1939. His *Collected Works* (18 vols.), trans. into Eng. by R. F. C. Hull, are in course of pub. For a summary of his work see D. C. Daking, *Jungian Psychology and Modern Spiritual Thought*, 1933, and J. Jacobi, *Psychology of C. G. Jung*, 1942.

**Jünger, Ernst** (1895- ), Ger. novelist and essayist, b. Heidelberg. After a distinguished military career in the First World War, he devoted himself to writing, using his former experiences as material. He is essentially an individualist, however, and although the substance of his writing is largely drawn from his military experience (e.g., *Feuer und Blut*, 1925), he is not guilty of Ger. militaristic thinking. Indeed he believes that a constant exercise of human virtues is the only means of retaining a civilisation threatened by the forces of inhumanity and barbarism. Among his works are *Das abenteuerliche Herz*, 'Figures and Capricious', 1929, a contemplative essay; *Der Arbeiter*, 1932, in which he describes the contemporary worker; and *Gärten und Strassen*, 1942, which is a diary of some

time he spent in France during the Second World War. Other works include *In Stahlgewittern*, 1920 (trans. 1929), *Afrikanische Spiele*, 1936, *Auf den Marmor-Klippen*, 1939, *Gehelmnisse der Sprache*, 1934 (revised 1939), *Atlantische Fahrt*, 1947, and *Das Sanduhrbuch*, 1954. See L. P. Stern, *Ernst Jünger*, 1953.

**Jungermannia**, genus of liverworts which received its name in honour of the Ger. botanist, Jungermann. The species are moss-like and are known popularly as scale-mosses; sev. fossils have been found.

**Jungfrau** (Ger. for maiden), one of 3 linked peaks (Eiger, Mönch) in the Bernese Oberland, Switzerland: height 13,070 ft. It was first climbed in 1811 by the brothers Meyer, from the E., and since then has been climbed on every side. There is a railway to the Jungfraujoch (11,300 ft), passing through a tunnel 5 m. long. A hotel was built in 1925 near the upper terminus of the railway.

**Jungle-fowl**, name applied to birds of the family Phasianidae, to which belong 4 species. *Gallus gallus*, the Red J., is generally considered to be the origin of domesticated poultry. Its back is purplish-red and orange, while the under surface, wings, and tail are greenish-black tinged with yellow. It is a native of India, Sumatra, the Philippine Is., and the Celebes, and is pugnacious towards its own kind, while the noise of both cock and hen is said to resemble that of ordinary domestic varieties. The other species of the genus are *G. sonnerati*, the Grey J., a native of S., central, and W. India; *G. varius*, found in Java; and *G. lafayetii*, a native of Ceylon.

**Jungle Warfare**. With the possible exception of the E. African campaign of the 1914-18 war, J. W. before 1939 consisted in the main of punitive operations by European and European-trained troops against native tribes fighting in their own habitat. Special training in this type of warfare was largely confined to units such as the King's African Rifles and the Royal W. African Frontier Force. The entry of the Japanese into the war in 1941 brought home the need for much closer attention to the problems of J. W. on the part of the Brit. and other allied forces. The Japanese had made a close study of the subject, and used their knowledge to full effect in their earlier operations. The basic pattern of J. W. consists of a series of small combat actions in which platoons armed with light weapons, including manpack flame throwers and rocket launchers, strive to eject the enemy from their positions. These actions are largely independent because lack of observation, and difficulties of movement and intercommunication, preclude direct control by battalion and higher level commanders. The allied troops learned this new type of warfare the hard way, but soon overcame their initial disadvantage. The later operations in Burma were an unbroken record of success. The lessons learned in Burma were later used with good effect in the operations against the Communists in Malayan jungles. See

Sir C. E. Callwell, *Small Wars*, 1906; H. Rowan-Robinson, *Jungle Warfare*, 1944; B. E. Fergusson, *The Wild Green Earth*, 1946, and *Beyond the Chindwin*, 1946; F. Spencer Chapman, *The Jungle is Neutral*, 1949.

**Junia Gens**, anct Rom. clan, to which belonged the families of Brutus and Silanus.

**Junin**: 1. Dept of Peru, traversed by the Andes Mts. In this dept is the Lake of Junin or Chínchaicocha, situated at an elevation of 13,560 ft and drained by the R. Montaro. The lake is 14 m. long and close to Cerro de Pasco. The dept is rich in minerals, including silver. Area 11,166 sq. m. (Pasco dist. was separated in 1944); pop. about 385,000. Cap. Huancayo.

2. Tn situated in the dept of Junin, central Peru, 100 m. N.E. of Lima, standing at an elevation of 14,000 ft. It is a nitrate riv.-port, and has good road and rail connections.

3. City and rail junction of Argentina, 150 m. W. of Buenos Aires, on Río Salado. It is a centre for technical education, and a general commerce and agric. market. Pop. 37,000.

**Junin, Lake** (or Chínchaicocha, or Reyes), in Peru, lying to the S. of Cerro de Pasco. Altitude 13,560 ft; length 14 m.; breadth 6 m. It discharges its surplus waters at the NW. corner by the Mantaro or La Oroya R.

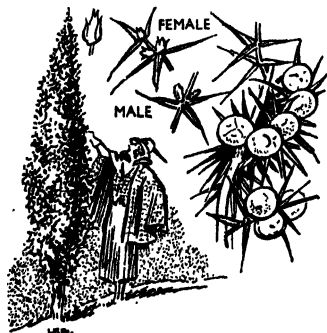
**Juniperus**, genus of coniferous plants containing 30 species, all of which are evergreen trees or shrubs and flourish in

besides the Scots pine and the yew) as well as in other parts of N. Europe and Asia; the stem and leaves contain an aromatic principle; the blue-black fruit is used medicinally and in the flavouring of gin. *J. virginiana*, the red cedar, of N. America, furnishes a valuable wood used by turners and cabinet-makers, and also employed in making lead pencils and cigar boxes; *J. bermudiana* serves like purposes. *J. sabina*, the savin, grows in S. Europe, and the topmost twigs of the plant are used in pharmacy. See FORESTRY.

**Junius, Francisus** (1545-1602), b. Bourges, France. He is best known for his own ed. of the Lat. O.T., see his *Opera Theologica*, 1613.

**Junius, Francisus** (1589-1678), son of the above, b. Heidelberg. He was brought up in Holland, but in 1620 went to England, where he became librarian to the Earl of Arundel. He was a student of Anglo-Saxon, Gothic, etc., and pub. the Gothic version of the Gospels, *De Pictura Veterum*, and *Etymologicum Anglicanum*, a valuable work.

**Junius, Letters of**, literary curiosity of the 18th cent.—a curiosity because, in spite of ingenious surmises and the most thorough and persistent perusal of contemporary documents, the identity of the author is still doubtful, and it is as true to-day as at the hour of their pub. that—to quote his own words—‘the mystery of Junius increases his importance.’ The letters, 70 in number, appeared in the London *Public Advertiser* between 21 Jan. 1769 and 21 Jan. 1772. During this period the writer invariably used the pseudonym of J., though he had at different times availed himself of others: ‘Lucius,’ ‘Brutus,’ and possibly of ‘Nemesis.’ His object was clearly to ruin the Duke of Grafton’s ministry, and in fulfilment of that purpose he used the weapon which nature had given him, namely satire of the most brilliant and deadly description. The Marquess of Granby, the Duke of Bedford, and Lord Chief Justice Mansfield were each in turn the victims of his powerful and vilifying invective, but the most violent of J.’s onslaughts were naturally reserved for their leader, the ineffectual Grafton. Moreover the author profited by his disguise, or rather invisibility, to speak some frank abuse of the king; indeed it was the impudent epistle he addressed to George III which excited a veritable storm of indignation, and at the same time sealed the writer’s fame. But J. was defeated in his aims; for the fall of Grafton (1770) was only the signal for the advent of Lord North and his tedious administration. Perhaps J. deserved no better; for although he was a loyal and active supporter of Chatham he showed no political acumen in the steps he took towards restoring him to power. A modern reader of the ‘Junius’ polemics will be struck with their scurrility and venom; let him remember that these were fashionable qualities in similar writings of the day. But he will be more permanently and sincerely impressed by the



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the N. hemisphere. The leaves are small, needle-shaped, and occur either as opposite leaves or in whorls of 3 or 4; occasionally they are imbricated in 4 rows. The flowers are dioecious; the males form a scaly catkin and the females a small rounded cone which later develops into a fleshy fruit, known as a *galbule*, in appearance greatly resembling a true berry. *J. communis*, the common juniper, is a shrub which flourishes in Great Britain (where it is a native conifer

vigour and dignity of their style. The careful rounding off of the lengthy periods, and a certain typically 18th-cent. pomposity, prove the author to have been an earnest admirer of the Ciceronian tirades; yet, in spite of his indebtedness to classical models, J., whoever he was, had a command over language which was original as well as splendid. There are cogent arguments in favour of regarding Sir Philip Francis as the unfathomable J., but the claims of a host of far more distinguished men, including Burke, Lord Chatham himself, Wilkes, Barré, and Horace Walpole, have one and all found eager partisans. See *The Francis Letters*, 1894; G. H. R. Francis, *Junius, Revealed by his Surviving Grandson*, 1894; J. Smith, *Junius Unveiled*, 1909; C. W. Everett, *The Letters of Junius*, 1927.



A CHINESE JUNK

**Junk**, flat-bottomed, sea-going vessel, peculiar to China, which is employed on the coasts and seas of China and Japan. It carries large masts with square sails of matting, and has a very high fore-castle and poop. Its progress is slow, and it is awkward to handle.

**Junker, Wilhelm** (1840-92), Ger. explorer of Africa, b. Moscow. He studied medicine in Göttingen, Berlin, and Prague, but going to Africa in 1874 began the work of his life, exploration. He visited Tunis and Egypt, and explored the Upper Nile and the Wellé. In 1883 he was prevented from returning to Europe owing to the Mahdist rising, but succeeded in reaching Zanzibar in 1886, and received the gold medal of the Royal Geographical Society in 1887. His *Reisen in Afrika* (3 vols.), Vienna, 1889-91, contains an account of his travels and is a work of high merit. An Eng. trans. by A. H. Keane was pub. in 1890-2.

**Junkers, Hugo** (1850-1935), Ger. aircraft designer, b. Rheydt. From 1897 to

1912 he was prof. of mechanical engineering at the technical high school at Aachen. In 1919 he founded the J.-Werke at Dessau for the manuf. of aeroplanes, and built up his business until by 1939 it was the largest of its kind in Germany, employing 5000 workers. His machines, including transport planes, fighters, and bombers, were used by the Germans in the Second World War. His *Ju 52* was one of the great transport aircraft of all time. J.'s vital importance in aviation hist. was due to his revolutionary work in pioneering the cantilever wing and all-metal construction of aeroplanes.

**Junkers**, political party name given in Germany to the class of militaristic young Prussian nobles who supported Bismarck before the Franco-Prussian war. The name in more recent times has been associated with the sword-rattling and reactionary party of pre-1914 Germany, and it is generally considered that the attitude, outlook, and behaviour of the J. had a considerable effect on events leading to the First World War and, though after 1918 their influence was much diminished, on events leading also to the Second World War.

**Juno**, Rom. goddess (Gk. Hera), daughter of Saturn and Rhea, and wife and sister of Jupiter, queen of heaven and earth. She was the protectress of all women, from the moment of birth till death. *Juno Natalis* was invoked by women on their birthdays; at marriage *Juno Iupalis* presided; and *Juno Lucina* was invoked in childbirth. Her festival, the *Matronalia*, was celebrated on 1 Mar.; another festival, the *Nonae Caprotinae*, fell on 7 July. The month of June was called after her, and thought particularly lucky for marriages. She was also the guardian of finance, a temple being dedicated to *Juno Moneta* in 344 bc, and later used as a mint. She was represented with attendant peacocks.

**Juno**, third asteroid (q.v.) to be discovered, was found by Harding in 1804. J., Ceres, Pallas, and Vesta (qq.v.) are the four largest planetoids and present at opposition visible disks about 1 in. in diameter, corresponding to real diameters from about 500 to 120 m.

**Junod's Boot**, see AEROTHERAPEUTICS.  
**Junot, Andoche**, Duc d'Abrantes (1771-1813), Fr. soldier, b. Bussy-le-Grand, in Côte-d'Or. He joined the volunteer army at the outbreak of the revolution, and came to know Napoleon at the siege of Toulon. He distinguished himself in many campaigns, and in 1804 was made governor of Paris. In 1807 he commanded the army which invaded Portugal, and was so successful that he was created Duc d'Abrantes, and made governor of Portugal; but he was defeated by Wellington at Vimiera and obliged to retire from the country, bitterly mortified that he was not made a marshal of France when he received the Cross of the Légion de Honneur. He afterwards served in Germany and Russia, but being blamed, with others for the disastrous Russian campaign was sent to govern Illyria.

This disgrace increased the mental instability to which he had always been prone, and he committed suicide.

**Junot, Laurette de Sainte-Martin-Permon, Duchess D'Abbrantès** (1784-1838), Fr. writer, wife of Andoche J. (q.v.), b. Montpellier. She had considerable wit and intelligence, and her *salon* attracted most of the influential political figures of the Napoleonic era. She is remembered for her *Mémoires*, 1831-5, which deal with the period 1789-1830. She also pub. *Femmes Célèbres*, 1833-5, and *Histoire des salons de Paris*, 1837-8.

**Junta**, Sp. word designating a legislative or other distinguished assembly which meets either for political purposes or for the passing of laws. In 1808 a J. was elected to undertake the defence of Spain against Napoleon. In Eng. hist. the word is used as a term of contempt for a legislative party, etc., e.g. the Whig J. in the reigns of King William III and Queen Anne.

**Jupille**, tn in Belgium, 3 m. NNE. of Liège. It stands on the Meuse and has coal mines and important ironworks, producing boilers and nails. Pop. 9700.

**Jupiter**, later identified by the Romans with Zeus (q.v.), was originally an elemental deity. His name signifies father, or lord, of heaven, being a contraction of *Diavis pater*. He was first worshipped as the god of rain, thunder, and lightning; whence he had appropriate titles (*Pluvius*, *Fulgurator*, etc.). To these, in course of time, were added others corresponding to the various aspects of his power and patronage. As the special protector of Rome he was worshipped by the consuls when they took office; and the triumph of a victorious general was a solemn procession to the temple of J. Capitolinus. J. was supposed to determine the course of human affairs. He foresaw the future; and the events happening therein proceeded from his will. He revealed the future to man through signs and the flight of birds. For the same reason he was invoked at the beginning of every undertaking, together with Janus (q.v.). J. was also regarded as the guardian of law, and as the protector of justice and virtue. As he was the lord of heaven, and consequently of light, white was sacred to him. White animals were offered to him; his chariot was described as drawn by 4 white horses; his priests wore white caps (see FLAMEN); and the consuls were attired in white when they sacrificed in the Capitol on the day of their inauguration.

**Jupiter**, largest of the planets, and (if the sun, moon, and comets be excluded) the second brightest object in the sky when it is nearest to the earth (having about 2 times more lustre than Sirius, the brightest star), is one of the outer planets, and its orbit lies between those of the minor planets and that of Saturn. J.'s mean distance from the sun is 5 times that of the earth (483,000,000 m.), and its period is 11.86 years. Other data of the planet are as follows: Diameter, 11 times that of the earth (equatorial, 88,700 m.; polar, 82,800 m.); mass, less

than one-thousandth of the sun; density, one-third denser than water, the earth being more than 4 times as dense as J.; rotation about axis, about 10 hrs.; and gravitational pull at surface, 2.65 times that on the earth.

J. is attended by 12 satellites, 4 of which are just beyond the range of naked-eye vision, but can easily be seen with the aid of a pair of field-glasses. These 4 moons were discovered by Galileo in Jan. 1610, being one of the first-fruits of the newly invented telescope. It was not till Sept. 1892 that Prof. Barnard, at the Lick Observatory, found a fifth satellite revolving between these 4 and J. Three more moons were discovered as follows: 2 by Perrine at the Lick Observatory, 1904-5, and 1 by Melotte at Greenwich, 1908. These recently discovered satellites can only be seen by high-power instruments, but quite a small telescope will show the transits in front of J. of Galileo's moons and their eclipses in his shadow. The smallest of Galileo's satellites is nearly as large as the moon, and the largest has a diameter nearly half that of the earth. The surface of J. presents the appearance of a number of belts, and they can be detected with the aid of a small telescope. The surface of the planet is continually changing, but since 1878 the equatorial belt has had a large red spot. The spot has varied in brightness, and was just visible in 1907. It has been found that the belts or currents rotate at different velocities, depending on their lats. These differences go to prove that J. is not a solid body, and the permanence of the red spot also favours the conclusion. The red spot would appear to be something in the nature of a floating is., an is. having its base in the more solid regions.

**Jura** (Scandinavian *deor-oe*, deer is.), is. of the Inner Hebrides, off the coast of Argyll, Scotland, separated from Scarba on the N. by the whirlpool of Corrievreckan, from Islay on the S. by the Sound of Islay, and from the mainland on the E. by the Sound of J. Its greatest length is 27 m., the width varying from 1 m. to 8½ m. It has a range of mts. culminating in the conical Paps of J. (2751 ft and 2412 ft). The inhab. are engaged in fishing, agriculture, and the raising of livestock. Area 160 sq. m.; pop. 260.

**Jura**, dept. of E. France, formed of part of the anc. prov. of Franche-Comté. It is bordered on the E. by Switzerland. The greater part of the dept is occupied by the J. Mts, but there is a plain in the W. The chief rvs. are the Doubs and the Ain. Some cereals and beet are grown, and sheep and horses are raised; some excellent wines are produced. There are metallurgical, paper, furniture, foodstuff, and watchmaking industries, and hydro-electric schemes. The prin. tns are Lons-le-Saunier (the cap.), Dole, and St-Claude (qq.v.). Area 1951 sq. m.; pop. 220,200.

**Jura Mountains**. This range of mts extends for about 190 m. from the dept. of Ain in France in a N.-easterly direction through Switzerland, traversing the cantons of Vaud, Neuchâtel, and Bern to the

R. Rhine. They are made up of parallel ranges, the chief heights in which are Cret de la Neige (5655 ft), situated W. of Geneva, the Dôle (5005 ft), Colombier de Gex (5548 ft), and Mont Tendre (5519 ft). These consist chiefly of limestone, known as Jurassic, a term applied to the whole system in this div. of geology owing to the preponderance of this limestone in these particular mts. The mts are covered with forests and intersected with fissures.

**Jurassic System.** The geological name

through the sea as 'massifs' separating basins or straits. The latter do not appear to have been very deep nor were the massifs very high and as a result the Jurassic sediments are those typical of shallow seas receiving comparatively little material from land. Argillaceous muds, clays, marls, and limestones are characteristic. In detail the Jurassic succession is very variable, but may be summed up thus. The Lower Lias consists of dark clay-bearing limestones; the Middle and Upper Lias of dark marls and



DINOSAURS (DIPLODOCUS CARNEGII) OF THE UPPER JURASSIC

An artist's impression, based on reconstructions of remains in the Upper Jurassic of Wyoming.

(from Jura Mts) for the second Mesozoic System of strata. The Jurassic follows the Triassic and is succeeded by the Cretaceous System (q.v.).

The J. S. is extremely fossiliferous and has been subdivided on the fauna which it contains into a number of divs. The main subdivs. are as follows:

	Purbeckian
	Portlandian
Upper Jurassic	Kimmeridgian
	Corallian
	Oxfordian
Middle Jurassic	Bathonian
	Bajocian
Lower Jurassic	Lias

The J. S. of Europe records the spread of a sea which in Lower Jurassic times advanced from the Mediterranean and S. Europe northwards over the continent which occupied much of what is now N. Europe. Parts of the land projected

limestone. The Middle Jurassic is made up of hard limestones, sometimes oolitic and occasionally iron bearing. The Oxfordian is predominantly a clay bearing div., usually dark in colour; the Corallian very variable but often, as its name suggests, containing coral. The Kimmeridgian consists of clays in Britain, though limestones occur on the Continent, while the Portlandian is rich in limestones. In Middle Jurassic time the seas appear to have retreated slightly, and in Upper Jurassic Purbeckian brackish or fresh-water deposits predominate and indicate that the sea had retreated once again to the S. of Europe.

The J. S. fauna is notable for the following: siliceous and calcareous sponges; corals; echinoids, now far more important in the Jurassic than in the Palaeozoic, whereas the related crinoids have become less abundant; lamellibranchs; gastropods, and cephalopods, the last including

the ammonites, which become most strikingly widespread in the Jurassic and which have been employed to divide the system into zones recognisable all over the world. Among plants, cycads were particularly abundant, and among vertebrates the reptiles predominate as marine forms (Ichthyopteria, Saurpterygia), as land animals (Dinosauria), and in the air (Pterosauria). The earliest birds are known from the Jurassic, where Archaeopteryx appears (see SOLENNHOFEN STONE, in which the only 2 skeletons of Archaeopteryx yet discovered were preserved).

The rock members of the J. S. are widely distributed, e.g. a large tract surrounds the Paris basin; a big area exists in Silesia, Franconia, and NW. Germany; the Jura Mts give their name to the system; more or less isolated patches occur in central and N. Russia, in the Crimea, Caucasus, Carpathians, etc.; though the development is less complete in N. America, yet there is an important dist. in Colorado rich in reptilian remains; and portions of the system occur throughout India, S. Africa, S. America, and Australia. In S. Britain the J. S. lies to the N. and NW. of the Cretaceous deposits, running in a curving line from the N. of Yorks (valuable ironstone in Cleveland) through W. Lincs, widening out near Northants, thence to S. Glos. and to Dorset (with the useful Bath and Portland 'freestone'). Only very small areas occur in the rest of the Brit. Is., as in Sutherland and the Is. of Skye in Scotland, and near Lough Foyle in Ireland.

**Jurat**, one of a body of magistrates in Jersey and Guernsey (the Channel Is. group). J.s are chosen for life and, together with the bailiff, constitute the Royal Court of Justice. The office of J. dates from 1537.

**Jurieu de la Gravière, Jean Pierre Edmond** (1812-92), Fr. admiral, b. Brest. He entered the navy in 1828, and was in command of the Fr. Mediterranean fleet during the Franco-Prussian war of 1870, becoming director of charts in 1871; but he is chiefly famous as a writer on naval hist., and among his works are *Guerres maritimes sous la République et l'Empire*, 1864, *La Marine d'Autrefois*, 1865, *La Marine d'Aujourd'hui*, 1872, and *Les Origines de la Marine et la Tactique navale*, 1891.

**Jurieu, Pierre** (1637-1713), Fr. Protestant theologian, b. Mer, Loir-et-Cher. Studied in England under his uncle Pierre de Moulins, and in 1674 was made prof. of Heb. at Sedan; but when that univ. was taken from the Protestants he settled at Rotterdam. He defended Protestantism with great ability, and in his *Accomplissement des Prophéties*, 1686, foretold the overthrow of the papacy in 1689. Besides this he wrote *La Politique du Clergé*, 1680, *Histoire du Calvinisme et du Papisme mis en Parallèle*, 1683, *Histoire des Dogmes et des Cuites*, 1704, and *Lettres Pastorales Adressées aux Fidèles de France*, 1688.

**Jurisdiction** means the authority by which the law courts are entitled to decide matters litigated, or questions tried before

them. The High Court has plenary J. all over England and Wales; but the J. of inferior courts (q.v.) is limited by being confined to certain limits of area and to certain kinds of causes or matters in dispute. Where the civil courts of inferior J. purport to act in a matter in excess of their J. the aggrieved party may get the cause removed to the High Court by order of prohibition; and where a party is convicted in a criminal court that has no J. in the matter the proceedings may be moved into the Queen's Bench Div. by order of *certiorari*. Brit. subjects who commit murders or manslaughters on land in foreign countries are triable in the Brit. courts. As to eccles. J., see ECCLESIASTICAL COURTS. States which belong to the family of nations (see INTERNATIONAL LAW) claim exclusive J. on the sea to a distance of one marine league from the shore, though the U.S.A. claim a greater extent of J. than this. In 1922 the U.S. Gov., in order to have a freer hand in dealing with liquor smuggling, which, in consequence of prohibition, soon became extensive, proposed a treaty with Great Britain giving the U.S. Gov. a right of search to a limit of 12 m. Great Britain would not assent, but a compromise was reached by treaty which left intact the principle that 3 marine miles extending from the coastline outwards and measured from low-water mark constitute the proper limits of territorial waters. By the Territorial Waters Jurisdiction Act, 1878, 'territorial waters of Her Majesty's dominions' means any part of the open sea within one marine league of the coast measured from low-water mark. The J. of the Admiralty Div. in the case of Brit. ships and all those on board extends not only over the high seas but also in foreign rivs. 'as far as great ships go'; but not to any cinque port, haven, or pier, nor to any creek, riv., or port within the body of a country. In the canon law of the Rom. Catholic Church J. may be broadly defined as the territorial or other limits within which a cleric is entitled to exercise the functions appropriate to his order.

**Jurisprudence**, study of the philosophy and principles underlying systems of law: its exponents, who are known as jurists, are concerned with the theories and concepts of law, whereas practitioners deal with the practical application of legal systems to everyday problems. The content of J. may be broadly classified under the heads of concepts of law, legal theory, and sources of law.

(a) *Concepts*. This branch of J. endeavours to work out the principles on which the subject matter of a system of law is based. It includes the study of such topics as rights of property, status of persons, contracts, crime, and legal rights and obligations generally. These 'concepts' are common to most legal systems but will be treated differently by each of them to meet the social needs of the communities they serve.

(b) *Legal theory*. Legal theory is concerned with the underlying purpose of



systems of law. The jurists of ancient Rome and Greece sought to distinguish between law as it really existed (positive law) and an ideal state of law which was termed 'natural law.' This latter more liberal system of law was developed by the Romans as a *jus gentium*. Many of the continental legal systems owe their origin to Rom. J. The Soviet Union legal theories are inspired by Marxist philosophy. Nineteenth-cent. continental jurists sought to find a theory of law which would be ideal and of universal application. The historical school of J. headed by Savigny believed that law had its origins in the spirit of the people (*Volksgeist*). Stammler suggested that 'natural law' was not immutable but had a changing content.

Eng. jurists took a more practical approach. Austin was concerned with 'positive law' and was influenced by a utilitarian philosophy of which Bentham (q.v.) was the prin. exponent.

Modern J. owes much to Amer. juridical thought. Dean Roscoe Pound regards legal theory as 'social engineering' which works out practical solutions to meet the competing interests in society. It may be said that contemporary legal theories are concerned with the evolution of systems of law designed to meet the needs of a given community, whereas their predecessors strove to find abstract eternal truths.

(c) *Sources of law.* The jurist is concerned with the source of law. Custom, particularly in England, has played an important part in the origins of legal systems. There has been engrafted on to customary law a system of judicial precedent based on decided cases. A study of source of law is relevant in considering the development of such concepts as property rights and liability for negligence.

See J. Austin, *Analysis of Jurisprudence*, 1905; Sir P. Vinogradoff, *Outlines of Historical Jurisprudence*, 1920 ff.; Sir F. Pollock, *First Book of Jurisprudence*, 1929; G. W. Keeton, *Elementary Principles of Jurisprudence*, 1930; H. J. S. Maine, *Ancient Law*, 1931; B. N. Cardozo, *The Judicial Process* (11th printing), 1941; J. W. Salmond, *Jurisprudence* (10th ed. by G. L. Williams), 1947; W. Friedman, *Legal Theory* (2nd ed.), 1949.

*Jurisprudence, Medical, see MEDICAL.*

**Jury.** Trial by J. signifies the determination of facts in the administration of civil or criminal justice by 12 men sworn (*Lat. jurati*) to decide facts truly according to the evidence produced before them. The institution is one of the most cherished guarantees of Brit. liberties, and historians in their enthusiasm have often seen its origin in the general statement of the liberty of the subject expressed in Clause 39 of Magna Carta, which declares that no freeman shall be imprisoned or outlawed except by the lawful judgment of his equals (*suorum parium iudicium*). But this clause referred to the trial *per pares* or *per sectatores* in the old co. or shire courts, an institution which has

long been generally admitted to have been of a totally different character. Simple, indeed, as the definition of a modern J. may appear, the evolution of that body has been a subject of keen controversy; though, according to the most widely accepted opinion, its genesis may with some confidence be sought in the Norman custom of inquest by sworn recognitors, the principle of which was adopted as an alternative mode of trial in criminal cases when the Lateran Council of 1215 abolished the ordeal in England as a means of ascertaining the truth of a criminal accusation. The vital fact in the evolution of the petty J. (as opposed to the Grand J.) is that, from being originally witnesses or persons presumed to know the facts of the case and able to come to a decision independently of other evidence, they ultimately became mere judges of fact.

In the form in which it existed for sev. cents. after the Conquest, the traces of trial by J. are more distinctly discernible in the ancient Norman customs than in such fragments of A.-S. laws as have come down to us. The canonical institution of trial by 12 compurgators, who merely gave general evidence as to a man's character, resembled the trial by J. in no other respect than the number of persons sworn, and that that institution was no progenitor of the J. is conclusively estab. by the fact that it continued, under the name of 'wager of law,' side by side with the J. down to 1833. A number of notable writers, including Forsyth (*History of Trial by Jury*), see in trial by J. a purely indigenous growth. Yet others ascribe its origin to the 12 senior thegns of Ethelred's time, who were sworn to accuse none falsely; but that institution is far more probably the ancestor of the modern Grand J.

But whatever view the antiquarian may take of the genesis, the development by Henry II, through the existing machinery of the shire-moot, of the Anglo-Norman system of inquest or inquiry into facts by sworn recognitors on behalf of the crown was not only the undoubted forerunner of the Eng. J., but an exclusively Eng. development. Under Henry II trial by recognitors was mainly used at first as an alternative to trial by battle in disputes concerning the title to land. The actual practice was to select 12 knights from the neighbourhood who were obliged to declare on oath which of the parties had the better right, and if not unanimous the original body was 'aforded,' i.e. others were added until 12 were of one mind. As soon as the 12 became stereotyped into arbiters ignorant of the facts, as distinct from witnesses, we have the true civil J., and probably the same steps are discernible in the evolution of the criminal petty J., whose primary function was to test the truth of a criminal presentment by an accusatory J. (*jurata delatoria*) or, as we call it, a Grand J.

The early hist. of the Eng. criminal J. is uncertain, but it is clear from Bracton and Fleta that at the end of the 13th

cent. it had become the normal mode of trial, having gained ground with advancing civilisation, and superseded the more ancient and barbarous customs of battle, ordeal, and wager of law. The 3 types of J. in modern Eng. courts are grand, special, and petty or common. Grand J.s were abolished by the Administration of Justice Act, 1933, with a few minor exceptions. Special J.s composed of more substantial citizens were abolished by the Jurors Act, 1949, except that commercial actions can be tried by a special J. J.s which hear the great majority of cases were called 'petty' or 'common' J.s until 1949, when the term was abolished.

All natural-born subjects of the sovereign and aliens domiciled for 10 years or more, being men or women between 21 and 60 years of age, are liable to serve as jurors. The sex disqualification was removed in 1919, and women are now liable to serve, but a judge may order that the J. shall be composed of men only, or of women only, or he may, on an application by a woman called on to serve, grant her exemption in respect of any case by reason of the nature of the evidence to be given or of the issues for trial. All jurors are liable to serve on petty or common juries, but special jurors must have certain special qualifications. The following persons—save where exempted or disqualified—are compellable to serve on a J. at the High Court, at the Assizes, and on both the J.s at the co. sessions: a co. or bor. resident who owns £10 a year in real estate or rent charge, or £20 in leaseholds; a co. or bor. householder assessed for rates at not less than £30 a year in Middlesex and the co. of London, or £20 in other cos.; and an occupier of a house with not fewer than 15 windows. Jurors for the City of London must be either householders or occupiers of premises, and, in addition, possess property of some description to the value of £100. Persons above 60 are exempt from J. service. The following are also exempt: peers, judges, Rom. Catholic priests, members of parliament, dissenting ministers following no other secular occupation than that of schoolmaster, barristers, solicitors (if practising), registered medical practitioners, and pharmaceutical chemists actually in practice, clerks in holy orders, solicitors' managing clerks, officers of the law courts, and officials connected with prisons and public lunatic asylums, officers in the navy, army, air and territorial forces on full pay, members and licentiates of the Royal College of Physicians of London or the Royal College of Surgeons (London, Edinburgh, and Dublin), masters, wardens, and brethren of Trinity House, masters of vessels in the buoy and light service, licensed pilots, post office employees, customs and inland revenue officials, metropolitan and country police officials, special constables, councillors of municipal corporations, tn clerks, bor. treasurers (as to their own cos.), justices of the peace, metropolitan police magistrates and their officials,

sheriffs' officers, and household servants of the sovereign.

Lists of jurors are prepared in accordance with the Jurors Act, 1949, the names of persons apparently qualified as jurors being so marked on the electors lists posted up in church porches and elsewhere. Persons who deem themselves to be entitled to exemption should communicate with the registration officer. A juror is entitled to 6 days' notice of the time at which he is required to attend, and if he is prevented by illness from attendance he must send a medical certificate to that effect to the associate of the court to which he is summoned. Failure to appear in the High Court or at Assizes when duly summoned may involve a fine of £10 (at a Co. Court, £5). Jurors are entitled to be paid, on a scale prescribed by the home secretary, expenses for travelling and subsistence and compensation for loss of earnings during the period of J. service.

Co. Court J.s, formerly composed of 5, now consist of 8 members. They are not often resorted to, and it is well known that Co. Court judges as a body are strongly opposed to having time wasted and their faculties implicitly condemned by summoning such J.s to assist them. Jurors may be objected to or 'challenged,' as it is termed, and either party may exercise this right, which is of 3 kinds: (1) challenge to the array, or an objection to the whole number of jurors on the panel on account of some reason alleged against the sheriff who summoned them; (2) challenge to the poll, i.e. to some particular jurymen or jurymen on one or more of the following grounds: (a) that the juror is a peer, or is (b) not properly qualified, or (c) is likely to be biased, or (d) has been convicted of some crime or misdemeanour; (3) peremptory challenge of jurors. A person indicted for felony or misdemeanour may challenge up to 7 jurors without giving any reason. A juror is not accountable for, nor will any action lie against him in respect of, anything he says or does in the discharge of his duty.

The J. system in civil actions is declining. In Co. Courts trial by J. has for many years been practically extinct. In the High Court any party to actions for fraud, libel, slander, false imprisonment, malicious prosecution, seduction, or breach of promise of marriage is tried by J. The right to a trial by J. in all other actions is in the discretion of the Court. See also COUNTY COURTS: CRIMINAL LAW; JUDGE. For the hist of J.s see Sir F. Palgrave, *English Commonwealth*, 1831; W. Forsyth, *History of Trial by Jury*, 1852; H. Brunner, *Die Entstehung der Schwurgerichte*, 1872; T. Taswell-Langmead, *English Constitutional History*, 1875; W. Stubbs, *Constitutional History of England in its Origin and Development*, 1875-8; H. Philipps, *On Juries*; N. Huskins, *Institutions* (Harvard), 1918; M. S. Ames, *British Justice*, 1942; R. M. Jackson, *The Machinery of Justice in England* (2nd ed.), 1953; P. Archer, *The Queen's Courts*, 1956.

**Jus Civile**, see ROMAN LAW.

**Jus Devolutum**, in old Scots law, the right of the bishop of a diocese to appoint an incumbent (q.v.) to a vacant living if the owner of the right of presentation does not exercise his right within a prescribed time. It is now used to denote the comparable right of the presbytery to appoint a minister if the congregation fails to do so within 6 months.

**Jus Emphyteuticarium**, see EMPHYTEUSIS.

**Jus Gentium**, i.e. law of nations, was the body of laws applied in ancient Rome by the praetors to nations under Roman dominion which did not enjoy full Roman citizenship. It adapted those notions of natural justice (*lex naturae*) which could satisfy the practical requirements of Roman society. The Eng. merchant law (q.v.) owes many of its essential principles to those of the J. G. Classical jurists give, as equivalents for *jus gentium*, 'the common law of all men,' 'the law which all nations use'—expressions which are designed to emphasise that *jus* is a word which includes the principles of legal right as well as the rules of law. There is no exact equivalent for *jus* in the Eng. language, and though J. G. is often translated by 'the law of nations,' as if it were synonymous or co-extensive with what we call 'International Law,' the trans. is not justified. For the Rom. jurists included more in their J. G. than the law prevailing between states; and again, with modern jurists, 'the law of nations' is a law which rests on the consent of nations or states as such, whereas the Rom. jurists regarded the J. G. as resting on the consent of mankind. With the Romans, the underlying principles were the same for private as for public law, being in both the universally recognised principles of legal right.

In 'public law,' e.g., ambas. were sacred by the J. G.; but no special dept of law in force between nations was appealed to, nor was the consent of any nation as such implied; ambas. were, in fact, sacred because in matters concerning nations as well as in those concerning private persons principles which commended themselves to the conscience of all men were necessarily to be observed. Thus the meaning of J. G. was the same in private and public law. Gaius (q.v.) uses *jus naturale* as equivalent to J. G. and declares that J. G. is 'what natural reason establishes among all men,' a declaration which Justinian (see JUSTINIANUS) adopts from him. Aylar (q.v.), in writing on the laws of war, also adopts the current view of his time, that of a natural law to which the J. G. was added by common consent. But the J. G. of Grotius (q.v.) comprises only questions prevailing between states; and he divides it into that which is truly law and that which produces only a certain effect like that of the primitive law; the former being identical with the law of nature, the latter resting on the will of the society of states and including laws good and bad, such as the bad customary laws of war against which he inveighed.

See *The Collected Papers of John Westlake on International Law*, 1914, where all the opinions are collated.

**Jus Mariti**, in Scots law, the unlimited right of a husband, prior to the Married Women's Property Act, 1881, to manage and dispose of the movable estate of his wife, whether belonging to her at the date of marriage or acquired subsequently. The J. M. was lost only by express renunciation, or by exclusion by an antenuptial marriage contract. The Act of 1881 abolished the J. M. except as to cases where the marriage was contracted and the wife acquired property before 18 July 1881.

**Jus Primae Noctis** denotes the right of concubinage on the first wedding night. According to some historians, the medieval feudal law gave the lord the J. P. N. with his tenants' wives on their first wedding nights. Blackstone repudiates the assumption that the custom ever existed in England or Scotland, though it has occasionally been adduced as a plausible explanation of the custom of Borough-Eng. (q.v.), and of the origin of the fine paid by the tenant to the lord on the marriage of the tenant's daughter. But there is strong evidence of its former existence in Scotland, according to Skene, in the ordinance of King Evenus to the effect that the lord of the ground should have the right by way of casualty (q.v.). Malcolm III repealed the ordinance and decreed that the bridegroom should pay a sum of money (called *marea*) as compensation. Hence the Scottish term *merchet*, or *merchetu mulierum*, to denote the old form of the marriage tax in the charters of Robert I. According to certain Fr. writers, the J. P. N. was synonymous with the *droit du seigneur*, but others consider that the latter term merely connoted the insistence of the Church on continence in brides. The term, according to Schmidt, Veullot, and others, had a quasi-religious significance, as exemplified in parts of China, where priests were said to deflower virgins at the express request of the girls' parents, and in W. India, where J. P. N. was extended to men of assumed divine caste. See Sir W. Blackstone, *Commentaries on the Laws of England*, 1765; W. Bell, *Dictionary and Digest of the Law of Scotland*, 1838; L. Veullot, *Droit du Seigneur*, 1854; K. J. L. Schmidt, *Jus Primae Noctis*, 1881; J. von Gierke, *Humor im Recht*, 1886, 1925.

**Jus Relictae**, in Scots law, the right of a wife after the death of her husband to one-third of his movable estate if he dies leaving children, and to one-half if he leaves none. The husband, by the Married Women's Property (Scotland) Act, 1881, has a corresponding right, called the *jus relict*, in the wife's property. The widow is not disentitled by reason of having been previously provided for by her husband, unless, in accepting such provision, she expressly renounced her right, and such renunciation is only effectual to bar her J. R. if it be shown that she was fully aware of the extent of her legal right. The husband cannot

affect the J. R. by any testamentary or other deed.

**Jusserand, Jean Adrien Antoine Jules** (1855-1932), Fr. politician and writer, b. Lyons. In 1887 he began his career as a diplomat, during which he fulfilled sev. important missions in London and Copenhagen. He was ambas. in the U.S.A., 1902-25. J. was a discerning critic, especially on Eng. literature. Among his writings may be mentioned *Le Théâtre en Angleterre depuis la Conquête jusqu'aux prédécesseurs immédiats de Shakespeare*, 1878, *Les Anglais au moyen âge*, 1884, *Le Roman anglais*, 1886, *Le Roman au temps de Shakespeare*, 1888, and *Histoire littéraire du peuple anglais des origines à la Renaissance*, 1894. In English he wrote *With Americans of Past and Present Days*, 1916, and *The School for Ambassadors, and other essays*, 1924.

**Jussieu, De**, name of a Fr. family of botanists. Among its chief members were:

**Antoine** (1686-1758), b. Lyons, prof. of botany in Paris, as the successor of Tournefort. He ed. Tournefort's *Institutiones rei herbariae*, 1719.

**Bernard** (1699-1777), also b. Lyons, superintendent of the gardens at the Petit-Trianon. To him is due the beginning of the arrangement of the plants according to a natural system, a method completed by his nephew. He ed. Tournefort's *Histoire des Plantes qui naissent dans les Environs de Paris*, 1725.

**Antoine Laurent** (1748-1836), nephew of Bernard, prof. of botany at the Jardin des Plantes, Paris, 1770. His *Genera Plantarum*, 1789, is the foundation of the modern method of botanical classification.

**Adrien** (1797-1853) is remembered for his pub. on Rutaceae, Meliaceae, Malpighiaceae, and Euphorbiaceae.

**Laurent Pierre** (1792-1866), nephew of Antoine Laurent, and a Fr. writer on education. His chief work is *Simon de Nantua*, 1818, trans. into sev. languages.

**Justianiana Prima**, see SKOPJE.

**Justice, Court of International**, see INTERNATIONAL JUSTICE, COURT OF.

**Justice, Royal Courts of**. Up to the time of the passing of the Judicature Act in 1873, the R. C. of J. were situated at Westminster Hall, the place where the *Aula regis* of the Norman and Plantagenet periods sat. The constituent courts in 1873 were the Queen's Bench (see KING'S BENCH), the Common Pleas (q.v.), and the Exchequer (q.v.), which were styled the Superior Courts of Common Law, in contradistinction to the High Court of Chancery, with its vice-chancellor's courts, which were generally referred to as the *Courts of Equity* (see EQUITY). In addition there were the High Court of Admiralty, usually called the *Instance Court* when exercising its jurisdiction in respect of maritime injuries, and the *Prize Court* when constituted for the decision of questions concerning booty of war; the Probate Court (q.v.), the Divorce Court (q.v.), the Palace Court (q.v.), and a Court of Chivalry. All the jurisdiction exercised by the superior courts of law and

equity, the High Court of Admiralty, the Courts of Probate and Divorce, and the Courts of Assize was by the Judicature Act, 1873, transferred to the High Court of J., situated in the Strand, which comprises: (1) the 2 Courts of Appeal (see APPEAL), (2) the Court of Criminal Appeal (see CRIMINAL APPEAL), (3) the Queen's Bench Div., (4) the Chancery Div., (5) the Probate, Divorce, and Admiralty Div., and (6) the Railway and Canal Commission Court. The bankruptcy work of the court is done by one judge from the Chancery Div. See also JUDICATURE ACTS.

**Justice of the Peace (J.P.)**. J.P.s are inferior and unpaid magistrates appointed by the lord chancellor on the recommendation of the lord-lieutenant of a co. to keep the peace within the co. bor., riding, liberty, or other div. in which they are appointed. The title of J.P. dates from 1360, when Edward III vested a criminal jurisdiction in the old Conservators of the Peace. The germ of these latter is traced by Bishop Stubbs (*Select Charters*) in the appointment by Archbishop Hubert as chief justice in 1195 of knights to receive the oaths for the maintenance of the peace (see the *Edictum Regium*). In 1253, and in other years, knights were assigned to keep the peace, and in Edward I's reign *custodes pacis* were sometimes elected by the co. freeholders. One of their prin. functions was the enforcement of the Statute of Winchester, 1285, which, *inter alia*, regulated the watch and ward in tns, and made dists. in which felonies had been committed liable to produce the bodies of the culprits. Edward III gave them the general power of trying practically all felonies, and in course of time they gradually usurped all the powers previously exercised by the Shire Moot. An Act of Henry VII empowered J.P.s to try all offences except charges of treason, murder, and felony, but from that date their powers as a body of criminal judges declined. For long, however, they exercised duties of local gov., and among the earliest of such duties were those of collecting benevolences, maintaining bridges, highways, and public buildings, granting licences, appointing local officials, and controlling local finance. The bulk of these administrative duties has long been transferred to the co. councils (q.v.) by the Local Gov. Act, 1888. But by means of a joint committee the J.P.s and the co. councils jointly superintend the co. police. The Act of 1888 did not interfere with the judicial work of J.P.s, and the decline in their criminal jurisdiction was rather a consequence of the practice of remitting the more serious felonies to the assizes—a practice now hardened in a statutory provision to the effect that the criminal jurisdiction of the quarter sessions (see COUNTY SESSIONS) is confined to the trial of certain minor felonies and misdemeanours.

The post of co. justice, formerly remunerated by a scale of wages regulated by a statute of 1389, is now purely

honorary, and since 1907 the old property qualification of £100 a year, or the necessity for any property qualification, has been abolished. The lord chancellor, the lord president of the Privy Council, the lord privy seal, the judges of the High Court, the attorney-general and solicitor-general are J.P.s *virtute officii*. Co. court judges, bor. recorders, metropolitan police court magistrates, and others by reason of holding certain minor judicial offices acquire the rank of J.P. Other classes of J.P. are mayors of municipal or metropolitan bors., ex-mayors of municipal bors. (for one year following their year of office), chairmen of co. and dist. councils, and the mayor and aldermen of the City of London. Bor. justices are now appointed under the Municipal Corporations Act, 1882, but a bor. can petition the crown for the appointment of a stipendiary magistrate to be appointed by the Home Secretary. Women are competent to be appointed as J.P.s (Sex Disqualification (Removal) Act, 1919). Petty sessions are sittings held by 2 or more J.P.s for the disposal of minor charges, admitting to bail persons accused of felony, the hearing of informations and complaints, and certain other purposes. The lord mayor or any of the aldermen of the City of London, or any stipendiary magistrate sitting in a court-house, where he has the usual power of 2 justices, constitutes a petty sessional court-house. A single magistrate sitting alone has very circumscribed powers. He can hear a charge prior to committing for trial, release a prisoner on bail (q.v.), take his recognisances to appear, and dismiss a case when the evidence is not strong enough to justify committal.

J.P.s perform a wide range of duties. Their criminal jurisdiction, which accounts for the bulk of the work of all courts, includes the hearing of cases involving such offences as assault, drunk and disorderly conduct, certain infringements of motoring laws, petty larcenies, and breaches of public health regulations. They have limited jurisdiction in matrimonial disputes (e.g. granting of separation orders, orders for the payment of a maximum of £5 per week for maintenance of a wife and £2 per week for each child). They also have other miscellaneous functions such as granting licences for public houses and places of entertainment, and limited powers of ejectment (q.v.) from lowly rented houses. See *Stone's Justices' Manual and The Justice of the Peace and his Functions*, and L. Page, *Justice of the Peace*, 1936.

**Justices, Lords.** The L. J., who are 8 in number, form, together with the Lord High Chancellor, the Lord Chief Justice of England, the Master of the Rolls, and the President of the Probate, Divorce, and Admiralty Div. as *ex-officio* members, the penultimate Court of Appeal for England and Wales. In practice, the Master of the Rolls alone of the *ex officio* judges sits as a regular member of the Court of Appeal. Ordinarily the Court of Appeal sits in 2 divs. of 3 judges, consisting of the

Master of the Rolls and 2 L. J. and 3 L. J. respectively. A judge of the High Court may be called on to sit in the Court of Appeal when necessary. The Court of Appeal hears appeals from the High Court, co. courts, and certain tribunals such as the Lands Tribunal. It does not hear criminal appeals. It may reverse a judgment, verdict, or finding, or order a new trial. A new trial may be granted on one or more of the following grounds: (1) misdirection by the judge; (2) misrepresentation of evidence or erroneous rejection of evidence by the judge; (3) misbehaviour of the jury; (4) excessive or inadequate damages; (5) discovery of fresh evidence; (6) total absence of evidence for the jury; (7) verdict against the weight of evidence; (8) surprise—term used to denote all cases where the appellant, through no fault of his own, was prevented from getting a fair trial, e.g. by his opponent keeping a material witness away, or misleading him as to the time of the trial. It is a rule of the Supreme Court that there is no appeal from an order of a High Court judge as to costs, such matter being entirely within the discretion of the judge making the order. In most cases a party has a right of appeal without leave, although the judge whose order or judgment is being appealed against may, on notice of appeal being given, refuse a stay of execution or impose certain terms as to paying money into court as a condition of appeal. From the Court of Appeal there is a right of appeal to the House of Lords, but it is an extremely expensive process. See also *JUDGE*.

**Justicia**, large genus of *acanthaceae* plants found in all tropical parts of the world, but preferring damp woods. Only a few species are cultivated as ornamental plants, such as *J. furcata*.

**Justiciar**, in Eng. hist. the chief political and judicial officer under the Norman and Plantagenet kings. The J. first appeared in Eng. hist. in the time of William I, as the regent of the kingdom in the sovereign's absence; e.g. Wm Fitz-Osborn, Earl of Hereford, acted in that capacity for William I during his absence in Normandy in 1087. The importance of the office was much increased by Ranulf Flambard under William Rufus and the J. became (next to the king) supreme in justice and finance. When the *Curia Regis* split up into the Courts of Common Law, in the time of Henry III, the power of the J. began to decline, as he could not preside over all the 3 courts. The office ceased to exist in the reign of Edward I and the J.'s powers passed to the Lord High Chancellor.

**Justiciary, High Court of**, supreme court for criminal cases in Scotland. There is no appeal from the decisions of the H. C. of J. to the House of Lords, and there is no separate Court of Criminal Appeal in Scotland, but appeals are heard before a tribunal consisting of 3 judges of the H. C. of J. Prior to 1926 there was no appeal whatever. The H. C. of J. sits permanently at Edinburgh, and various judges

go on circuit 6 times a year to Glasgow, 4 times to Aberdeen, Dundee, and Perth, and twice a year to Ayr, Dumfries, Inveraray, Inverness, Jedburgh, and Stirling; but special sessions may be held at any convenient tn. Its membership comprises the Lord Justice-General, the Lord Justice-Clerk, and 13 Lords Commissioners of Justiciary, i.e. the whole of the Lords of Council and Session and Senators of the College of Justice. A single judge usually sits, except in cases of special importance. Its jurisdiction extends to any crime against public law committed by a Brit. subject or a foreigner in Scotland, or partly in Scotland and partly abroad, or committed at sea if at the time the ship was within 3 m. of the coast of Scotland. Formerly certain crimes were triable only in the H. C. of J., such as robbery, rape, murder, and wilful fire-raising; but since 1887 the Sheriff Court has had jurisdiction in all crimes except treason, murder, and rape. In serious cases, however, the criminal is commonly remitted to the H. C. of J. for sentence.

**Justifiable Homicide**, see **HOMICIDE**.

**Justin Martyr**, St (c. AD 100-c. 165), early apologist of the Christian Church. B. Flavia Neapolis, now Nablus, in Samaria, of heathen parents, and brought up in the philosophy of the Stoics and Platonists. In his *Dialogue with Trypho the Jew* he ascribes his conversion to Christianity to a chance conversation with an aged Jew at Ephesus, who directed him to the O.T. prophets. After conversion he still wore his philosopher's cloak, disputing and lecturing at Ephesus, Rome, and other cities. His martyrdom, according to the *Acta SS. Justinii et Sociorum*, took place under the prefect Rusticus (AD 163-7), but some authorities quote 148. Undoubtedly genuine works of Justin are *Apologies for the Christians*, in 2 books, and the *Dialogue*. The former, addressed to a cultured pagan audience, is of great value for the hist. of the early Church. To a certain extent J. reconciles Christianity with anct Gk culture. The latter (in the form of a 2 days' theological discussion at Ephesus) is a defence of Christian teaching, against Judaism. Other works ascribed to him are a speech and an address to the Greeks and an *Epistle to Zenas and Serenus*, of doubtful authenticity. See J. C. P. von Otto, *Justinii philosophi et Martyris opera quae feruntur omnia* (5 vols., 3rd ed.), 1876-81; the Oxford Library of Fathers, 1861; (C. Coxe, *Ante-Nicene Fathers*, vol. II, 1868); A. von Harnack, *Judentum und Judenthristentum in Justin's Dialog mit Trypho*, 1913; E. R. Goodenough, *The Theology of Justin Martyr*, 1923; K. Thieme, *Kirche und Synagoge*, 1945.

**Justinianus, Flavius Anicius** (AD 482 or 483-565), Byzantine emperor, better known as **Justinian I**. He was b. in Illyricum, possibly of Thracian descent, Justinus, the emperor, being his uncle. Justinus had J. educ. in Constantinople, and appointed him his successor. Thus Justinian came to the throne in 527. The outstanding features of his reign are his

conquests and his laws. He has been described as vain and somewhat fickle of purpose, but his drive and energy were enormous. He was a man of wide interest and considerable intelligence.

The church received his constant attention. By edict he denounced the heresies of Theodore, a Nestorian, hoping thereby to put an end to the miserable schisms, and later he summoned a general council of the church. But the chief fruit of this was the tedious 'Three Chapters' controversy, and, as Justinian himself was suspected of Monophysitism and a more recent heresy, it is not surprising that his



JUSTINIAN I

From the Ravenna Mosaic

desire for peace was unfulfilled; and his rigorous persecution of heretics probably encouraged fanaticism and religious strife.

Belisarius (q.v.) and the Armenian eunuch, Narses (q.v.), were J.'s most famous generals. Under their commands Africa was wrested from the Vandals (535) and Italy from the Goths (552). Along the Danube there were successful skirmishes with the Bulgarians, Gepidae, and Langobards, whilst in 562 a truce was made after a 20 years' struggle with Chosroes I of Persia, whose encroachments on the E. frontier were thus momentarily halted. But J. has with some justice been accused of squandering the enfeebled resources of the empire in recovering exhausted ter. Instead of strengthening the existing barriers against the Slavs, Huns, and Persians.

J.'s legal reforms are his most enduring monument. A body of 10 scholars under Tribonian brought out the *Code* in 529, and a second ed. followed in 534. Seventeen lawyers, again with Tribonian at their head, issued the *Pandects*, or *Digest*, in 533, having 'extracted the spirit of jurisprudence from the decisions and

conjectures, the questions and disputes, of the Rom. civilians' in the remarkably short period of 3 years. The *Institutes*, which was intended as a student's manual, preceded the *Digest*. Finally, 16 edicts and a number of 'novels' (*Novellae*) completed his compilation, a compilation destined for centuries to be the basis of European codes, except in England. Mommsen's ed. of the *Digest* (1868-70) and Krüger's ed. of the *Code* (1873-7) are the best. See monograph by E. Grupe, 1923, and W. Schubart, *Justinian and Theodora*, 1943.

**Justinianus II** (669-711), Byzantine Emperor, 685-5 and 705-11, succeeded his father, Constantine IV. He made war on the Arabs and Bulgarians, and so roused the hatred of his subjects by his rapacities and persecutions that they rose in rebellion under Leontius. J. fled into exile among the Bulgarians, who restored him in 705. His rule was as cruel as before, and he was finally deposed by Philippius, and put to death. J. was the last Heraclian emperor.

**Justinopolis**, see CAPODISTRIA.

**Justinus I** (d. 527), Byzantine emperor, a peasant boy of Dacia, who enlisted in the guard of the Emperor Leo I. He soon became its general and, on the death of the Emperor Anastasius, was proclaimed emperor (518).

**Justinus II** (d. 578), Byzantine emperor, succeeded his uncle Justinus I. He became emperor in 565, and was an incompetent ruler. He dismissed Narses (q.v.), and during his reign the Lombards conquered N. Italy. From 574 Tiberias was co-ruler with J., who suffered increasing bouts of madness.

**Justinus, Marcus Junianus**, Rom. historian of uncertain date, author of an epitome of Pompeius Trogus. His work enjoyed considerable vogue during the Middle Ages because of its wide scope and short compass. See the edition of F. Rühl (revised by O. Seel), 1935.

**Justus**: (1) The surname of St Joseph Barsabas (see under JOSEPH). (2) A Jewish convert and fellow worker of St Paul (Col. iv. 10). (3) A Corinthian convert, whose name is given variously as 'Titius J.' and 'Titus J.' (Acts xviii. 7).

**Jute**, vegetable fibre grown chiefly in E. Pakistan and Indian Bengal where it is believed to have been cultivated as early as 800 BC. In these countries it has been employed for centuries in manuf., but its introduction into Europe dates only from 1828. The founder of the Bengal J. industry was an Englishman, George Acland, who began as a midshipman in the navy, and served with the E. India Marine Service, afterwards leaving to take up a commercial life, first in Ceylon, then in Bengal. He got into touch with manufacturers of paper at Serampur who were experimenting with fibres in the hope of improving and cheapening their output, and this seems to have prompted the idea in Acland's mind of the manuf. of phea. He returned to England to find capital and visited Dundee, already an important textile

centre in the flax and hemp industries, and with many of its machines and mills already being turned over to J. when the other fibres were not available. Messrs Balfour & Melville were the first to spin J. at their Chapelshade works in 1832, and, with machinery working to capacity, Dundee's pop. was trebled during the next 50 years. The growth of the factory system in India—began in 1855 when George Acland took out J.-spinning machinery from Dundee—curbed the expansion of the Scottish J. trade.

J. is obtained from the stems of 2 species of *Corchorus*, namely *C. capsularis* and *C. olitorius*, of the *Tiliaceae* family, which includes a dozen different types of fibre. The plants are anns., tall and spear-like with round stems as thick as a man's finger, and with hardly any branches except at the top. They reach a height of from 5 ft to 10 ft and are readily distinguished by their seed pods; the capsule of *C. olitorius* is a slender cylinder some 2 in. long, whilst that of *C. capsularis* is almost globular and rough to touch.

**Cultivation.** J. grows best in a hot, moist atmosphere where there is considerable rainfall. It flourishes in the Bengal region of India and E. Pakistan, especially in the highland dists., and attempts to introduce it into other parts of Asia and Africa have so far resulted in the yield of an inferior variety. The seed is sown broadcast from mid Mar. to mid May, but in the lowlands sowing is completed by mid April to allow the plants to reach a sufficient height before the floods. The plants mature in 4 to 6 months, the crop being raised by more than a million smallholders called ryots, each of whom tends the plants with the aid of his family. The appearance of the flower is the signal for harvesting. The stalks, which are either cut down with the sickle or pulled up by hand, are gathered into bundles and immersed in stagnant pools or streams to undergo the process known as 'retting.' This may last from 3 to 30 days, the object being to loosen the fibres and separate them from the stem. After being cleansed from vegetable impurities the fibre is made up into bundles, sorted according to quality, and passed through a powerful hydraulic press which reduces it to the familiar bales of commerce. Each bale weighs 400 lb., and an average crop yields about 2.6 bales per ac. The aggregate area under J. in Pakistan and India averages 2½ to 3 million ac., the ann. yield being from 7 to 10 million bales. Before the Second World War the crop was ample to meet world demand, but scarcity developed during and after the war and prices were high. The position was further aggravated by the partition of India in 1947. About three-quarters of the J.-producing area fell within the new state of Pakistan. But whereas the main growing area was in Pakistan, the manufacturing and shipping facilities were almost entirely in India. Serious economic differences followed between the two countries and for a time all

trade in J. ceased. In 1953 India reached agreement with Pakistan to import at least 1·8 million bales annually, equivalent to more than half the world supply of raw J. Since partition both India and Pakistan aimed to achieve greater self-sufficiency, India in the growing of J. and Pakistan in its manuf. Despite its slow decline between the two world wars the Dundee J. industry remains second only to India, but in 1956 it employed only 18,000 workers, or less than half the number employed in 1914. In 1946 the Brit. J. Trade Research Association was set up with laboratories in Dundee as part of the industry's post-war modernisation plan, whilst in the following year the industry's 6 sectional trade associations became linked in the Brit. J. Trade Federal Council whose H.Q. are at Bank St, Dundee. J. mills were estab. in Calcutta in 1855, and over 100 mills were in operation by the outbreak of the Second World War. The Indian J. Mills Association is probably the most important body affiliated to the Bengal Chamber of Commerce formed in 1886. In more recent years the Calcutta J. Dealers' Association has watched the interests of its members as dealers in J. for local consumption.

The U.S.A. is the biggest single market for J. manufs. Of India's total exports of all J. goods, about 50 per cent went to America during 1934-9 and 23 per cent between 1949-52, whilst nearly 24 per cent of Britain's J. goods exports in 1951 went to the U.S.A. The largest raw J. importers in 1951 were the U.S.A. (707,000 bales), U.K. (650,000 bales), France (513,000 bales), W. Germany (450,000 bales), Italy (418,000 bales), and Belgium (414,000 bales).

*Uses and characteristics of jute.* From very early times the people of the Indian subcontinent have made cordage, paper, and cloth out of this fibre. The chief cloth made to-day is 'gunny' cloth, which is woven of different textures, according to the purpose for which it is intended. Thus gunny bags are used for carrying poppy seed, pulses, and rice, and package covers, sails, sheets, and even wearing apparel are also made of this material. Other articles made of J. are string, cord, and rope, floor cloths, net bags, and lengths of stuff for tying bales of cotton. More than 80 different J. products and usages are claimed by the Dundee J. industry in various branches of industry, agriculture, and domestic life. Hessian, tarpaulin, sacking, and bagging are among bulk lines turned out from its factories, whilst from J. are also manuf. Wilton, Brussels, and other carpets and all kinds of rugs and matting. In common with other textiles modern research has made it possible to proof J. fabric against rot, mildew, fire, and acid fumes, and it is now extensively used as wrapping material, brattice cloth (for mine ventilation), linoleum and carpet backings, and for interlinings in clothing and upholstery. Although the best J. is inferior in durability and strength to hemp and flax, modern processing and blending with other

natural and man-made fibres have widely extended the range of its uses. The finest qualities, such as Serajung and Narajung, are lustrous, soft, and smooth, long, uniform in fibre, and of a yellowish-white colour. Inferior qualities, as, for instance, Dalsee and Dowrah, are of a brownish hue, and are fit only to be dyed darker shades. Good fibres may be dyed delicate and also bright tints, but they rarely bleach a pure white. Balers have an elaborate system of marking the 4 main classes of the fibre and of subdividing these again according to tone and quality.

*Manufacture.* Two separate and distinct processes are involved in making J. fabric—the preparing, spinning, and winding in the mill, and the weaving and finishing in the factory. The first process in the mill is called 'batching,' in which the J. is classified by quality. In the softening machine the 'stricks' or 'heads' are thoroughly wetted between fluted rollers with water and oil, as they have been hardened in the course of baling by hydraulic pressure. The 'drawing frames' and 'roving frames,' in which each sliver is drawn out to many times its own length, complete the process of preparation. A length of 14,400 yds of J. yarn is called a 'spynkle,' which in fine qualities weighs only 2½ lb. But a 'spynkle' of coarse yarn may weigh as much as 10 lb. J.-spinning is a very similar process to flax-spinning.

For statistics see the Commonwealth Economic Committee's *Industrial Fibres*. See also T. Woodhouse, *Farn Counts and Calculations*, 1921, and T. Woodhouse and J. Ireland, *An Introduction to Jute Weaving*, Dundee, 1922.

*Jüterbog*, Ger. tn in the dist. of Potsdam, 28 m. S. of Potsdam (q.v.). It was the scene of a Swedish victory during the Thirty Years War, and, near by, Bülow (q.v.) defeated the French in 1813. Pop. 15,000.

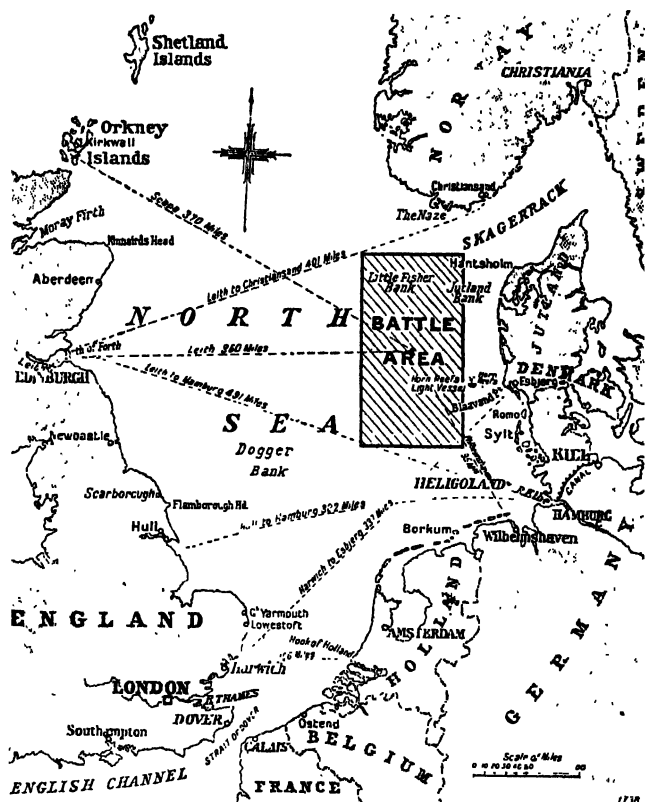
*Jutes*, Germanic tribe, who invaded Britain in the 5th cent., settling chiefly in Kent. Modern scholarship inclines to the view that the J. came to Britain from the region E. of the mouths of the Rhine, and not from the modern Jutland.

*Jutland* (Dan. Jylland), N. portion of the peninsula which extends northward to the Skaw headland (Skagen), from a line drawn from Lübeck to the mouth of the Elbe. J. is bounded in the S. by the R. Eider, and includes part of the Ger. prov. of Schleswig-Holstein; the remaining and larger portion belongs to Denmark. Separated from Sweden by the Kattegat and from Norway by the Skagerrak, it is almost cut in two by the Lim Fjord (100 m. long). The Little Belt, the Strait, that is, between J. and Fyn, connects the Baltic and N. Seas. J. and Fyn are linked by the Little Belt bridge. Irrigation, tree plantations, and cultivation of the fens, etc., have transformed over 90 per cent of the heath and sand of the interior into arable land. J. is also known as the Cimbric Peninsula, as it is believed to have been inhabited by



the Cimbric (q.v.). N. Slesvig, in the S. of J., was ceded to Prussia after the war of 1864, but by plebiscite in 1920 it was returned to Denmark. In the Second World War J. was occupied by the Germans. J. has an area of 11,400 sq. m., and a pop. of 1,801,740. The chief ports

over a prepared ambush of submarines. The elimination of the High Seas Fleet at this time would have been an important easement to Great Britain, but it would not have had a decisive effect on the war. On the other hand, ruin would have overwhelmed the allied cause had the Brit.



THE SCENE OF THE BATTLE OF JUTLAND

The Times

are Aarhus, Aalborg, Esbjerg, Horsens, and Randers (q.v.). See also DENMARK.

**Jutland, Battle of**, fought between the Brit. and Ger. fleets on 31 May 1916 off the W. coast of J. During the last week in May there had been indications that the cautious and timid tactics previously imposed on the Ger. Navy were now to be abandoned; that Adm. Scheer was planning an offensive against the Eng. coast with the aim of drawing the Brit. fleet

fleet been destroyed. It was, therefore, not surprising that the subsequent tactics of Adm. Jellicoe should have been governed by a measure of caution.

On the evening of 30 May both fleets put to sea, the Ger. consisting of 22 battleships, 5 battlecruisers, and numerous cruisers and destroyers. By dawn on the 31st Jellicoe had concentrated 24 battleships, 3 battlecruisers, with cruiser squadrons and destroyer flotillas, in the Long

Forties. Sixty-five m. ahead was Adm. Beatty with 6 battlecruisers, 4 battleships (5th Battle Squadron), light cruisers, and destroyers. All were steaming towards the Heligoland Bight and, if nothing was sighted by 2 p.m., it had been decided that the fleet should retire. The hour to turn arrived and Beatty had actually altered course to the N. when the cruiser *Gulatea*, reconnoitring to the E., suddenly reported: 'Enemy in sight.' About 8 m. away she had sighted a steamer being molested by 2 strange vessels which turned out to be the leading torpedo boat destroyers of the Second Ger. Scouting Group. Fire was opened. Beatty turned his squadron at once to the SE., but by the time the Fifth Battle Squadron had turned they were 10 m. astern. At 3.20 5 Ger. battlecruisers under the command of Adm. von Hipper were sighted. They immediately turned about in order to draw Beatty towards the High Seas Fleet of whose proximity he was not aware. Both sides deliberately converged and fire was opened at 3.45. At 4 p.m. the *Indefatigable*, after 12 min. action with the *Von der Tann*, blew up and sank almost without survivors; 28 min. later the *Queen Mary*, smitten amidships by a salvo from the *Derfflinger*, burst into flames, capsized, and exploded. With the *Lion* (Beatty's flagship) in flames, a salvo struck the *Princess Royal* and Beatty remarked to his flag captain: 'Chatfield, there seems something wrong with our bloody ships to-day. Turn two points to port' (i.e. towards the enemy). The crisis was past. As Brit. shells took effect, the Ger. fire became ragged and the Fifth Battle Squadron was now in action with von Hipper's rear. At 4.33 the cruiser *Southampton*, scouting ahead, suddenly sighted the Ger. High Seas Fleet hastening to von Hipper's support, and Beatty instantly turned to steam back towards Jellicoe. With support at hand, von Hipper turned also and now began the 'Run to the North.'

Meanwhile the Grand Fleet with Jellicoe flying his flag in the *Iron Duke* was steaming SE. at 20 knots through mist curtains which were beginning to hang over the sea. Jellicoe himself was in a haze of uncertainty due to conflicting reports about the enemy's position. Uppermost in his mind was the question: 'Where is the enemy battlefleet?' No one could tell him. Thus at about 5.30 the forces at Jellicoe's disposal were in the form of a huge crescent. Its SW. horn consisted of Beatty's detached squadron engaged with von Hipper and retreating on the Grand Fleet; its NE. horn composed of Adm. Hood in the *Invincible* with the Third Battlecruiser Squadron curling round to the S. Flung out ahead of the Grand Fleet were cruisers. Into the centre of this crescent von Hipper's battlecruisers and the Second Ger. Scouting Group (commanded by Boedicker) were plunging. Further astern was the High Seas Fleet.

At 5.20 the cruiser *Chester*, reconnoitring for Adm. Hood, was suddenly

overwhelmed by the Ger. Second Scouting Group as it emerged from the mist, but, shortly afterwards, Hood with his 3 battlecruisers bore down on the enemy and severely crippled 3 Ger. light cruisers. Boedicker and von Hipper, realising that they were being surrounded by superior forces, turned about and fell back on the High Seas Fleet and, during this movement the cruiser *Defence* suddenly found herself facing Ger. battlecruisers. Struck by a succession of shells she blew up. At this moment the *Lion*, much to Jellicoe's surprise as he had imagined Beatty to be much further to the E., came in sight of the *Iron Duke*. It transpired that the cumulative error in their relative positions amounted to 11 m. Instantly Jellicoe flashed the message: 'Where is the enemy battlefleet?' But no one knew. Finally, at 6.10 the *Barham*, leading the Fifth Battle Squadron, passed the vital information. But her report placed the leading Ger. battleship 3 m. nearer the Grand Fleet than was in actual fact the case.

Deployment was now imperative, and at 6.16 the much criticised order to deploy on the port wing column was carried out. Beatty, tearing across the front to take station in the van, obscured the already hazy atmosphere with smoke, while Hood wheeled into line ahead of Beatty. The Grand Fleet had now deployed into a single line between the enemy and his base. At 6.31 a salvo from the *Derfflinger* smote the *Invincible*, which blew up and sank with only 6 survivors. Scheer, now under heavy fire and considering himself about to be enveloped, turned his fleet 4 min. later, each ship turning simultaneously, and made off westward. At the same time he launched a destroyer flotilla to cover his retirement with smoke and a torpedo attack. Jellicoe turned away and the fleets fell rapidly apart. Twenty min. later Scheer again turned to the E., hoping to cross astern of the Brit. line. Instead he ran into the centre. As the Ger. ships emerged from the mist all the Brit. battleships opened a terrific fire on them. The *Seidlitz* burst into flames, the *Lützow* reeled out of line, and Scheer again executed his manoeuvre, all ships turning together towards the W. at 7.17. By luck a Ger. massed torpedo attack synchronised with this second turn away and forced Jellicoe to alter course in the opposite direction—to the E. The fleets separated and Scheer vanished into the mist. Abortive efforts were made by the Brit. battlecruisers to keep contact, but the mist was thickening, darkness was falling, and the Brit. fleet at that time had never considered night action or trained for it. Meanwhile Scheer brought his fleet round to a SE. course. His plan was simple: to go home as fast as he could by the shortest route, i.e. via the Horns Reef. Jellicoe imagined he would go for the Ems and sought a favourable position to renew the fight at daybreak. Destroyers were ordered to take station 5 m. astern of his line.

At 10.30 the Fourth Ger. Scouting Group had a brush with the Second Light

Cruiser Squadron on the starboard quarter of the Grand Fleet during which the Ger. cruiser *Frauenlob* was sunk. An hour later the High Seas Fleet crashed into the Fourth Destroyer Flotilla. *Tipperary* and *Broke* were disabled; the *Spitfire* collided with the battleship *Nassau* and the *Sparrowhawk* collided with the injured *Broke*. The Ger. cruiser *Elbing* was rammed and disabled by a consort, and the *Rostock* was torpedoed. Shortly after midnight the heavy cruiser *Black Prince* suddenly found herself within 1600 yards of the Ger. battle squadron and was instantly blown to pieces. There were no survivors. At 1.45 the head of the Ger. line, now on the port quarter of the

Hist.), vol. iii, 1923; *Official Narrative of Jutland* (H.M. Stationery Office), 1924; also Sir J. R. Jellicoe, *The Grand Fleet*, 1919; R. Scheer, *Germany's High Sea Fleet in the World War* (trans.), 1920.

Juvavum, see SALZBURG.

Juvenal, or Decimus Junius Juvenalis (c. AD 60-c. 140). Rom. satirist, was the son of a well-to-do freedman of Aquinum. His personal hist. is almost a blank, but the following are likely conjectures. After receiving a liberal education he devoted some time to the study of eloquence. Late in life he developed his genius for satire and incurred the displeasure of the Emperor Domitian by his contemptuous reference in the seventh satire to Paris, the

LIST OF SHIPS SUNK (AS PUBLISHED BY BOTH BRITISH AND GERMAN OFFICIAL PUBLICATIONS)

Class of Ship	British		German	
	Name	Tonnage	Name	Tonnage
Battleships	—	—	<i>Pommern</i>	13,200
Battlecruisers	<i>Indefatigable</i>	19,050	<i>Lützow</i>	26,700
	<i>Invincible</i>	17,530		
	<i>Queen Mary</i>	27,430		
Cruisers	<i>Black Prince</i>	13,750		
	<i>Defence</i>	14,800		
	<i>Warrior</i>	13,750		
Light Cruisers	<i>Tipperary</i>	1,900	<i>Wiesbaden</i>	5,600
			<i>Frauenlob</i>	2,700
			<i>Elbing</i>	4,400
			<i>Rostock</i>	4,900
Destroyers	<i>Ardent</i>	950	<i>S 35</i>	650
	<i>Fortune</i>	965	<i>V 27</i>	650
	<i>Nesstor</i>	1,000	<i>V 29</i>	650
	<i>Nomad</i>	1,000	<i>V 48</i>	1,160
	<i>Shark</i>	950	<i>V 44</i>	570
	<i>Sparrowhawk</i>	950		
	<i>Turbulent</i>	1,000		
		115,025		61,180

Grand Fleet, cut into 3 Brit. destroyer flotillas. The last contact was at 2.10 when the Twelfth Flotilla destroyed the battleship *Pommern* and sank a Ger. destroyer. That was the end of the fighting and at daybreak there was no enemy in sight.

Incredible though it may appear, Jellicoe was totally unaware of the events taking place during the night which indicated the movements of the enemy. No ship made a single report to him. The Brit. Navy felt that only bad luck had robbed them of complete victory. Though full of faith in its fighting prowess there was, however, a loss of confidence in material. Three capital ships had blown up with practically no previous damage, whereas no such disasters had befallen the Germans, and, while Brit. gunnery was fully equal, if not superior, to the Ger., the quality of Ger. shell was undoubtedly superior. These defects in shell were only made good 2 years later.

See Ger. Official Hist. (*Nordsee*, vol. v); Sir J. Corbett, *Naval Operations* (Official

pantomime dancer and court minion. There are also grounds, though not compelling grounds, for believing that he once commanded a Dalmatian cohort, that he sojourned in Egypt, perhaps as an exile, and that he lived into the reign of Antoninus Pius (AD 138-61). His *Satires*, 16 of which are extant, were pub. under Trajan and Hadrian. J. had learnt a lesson from Paris, and wisely husbanded his scathing portrait of the odious Domitian till after that emperor's death. It is a brutal, vivid, often disgusting picture that the poet draws of the vicious Rom. society of his day. The third satire, which is an Hogarthian painting of the metropolis, appeals the reader with the glare and variety of its colours, whilst the sixth, which may well be called the 'Legend of Bad Women,' displays to the full the grimness of the writer's humour, the remorselessness of his crude realism, and the sincerity of his spiritual revolt against the immoralities of the age, so that the truth of his own statement, 'Facit indignatio versum,' is obvious. Like Swift, J. often

descends to filth and indecency, and it must be confessed he was far too prone to verbal luxuriance and gaudy rhetoric. Yet at his best he writes with a style as vigorous and trenchant as Tacitus, and his verses are replete no less with the learning of a patient scholar than the worldly knowledge and wisdom of an auct Machiavelli. The first 9 satires are at the same time the finest and most virulent. The others reveal greater forbearance, loftier sentiment, but also a falling off in power. See the ed. of O. Jahn, F. Leo, and F. Buechler, 1910-32, and of A. E. Housman, 1931. There is a complete and unabridged trans. in Everyman's Library. See also P. de Labriolle, *Les Satires de Juvenal*, 1932, and J. W. Duff, *Roman Satire*, 1937.

**Juvenile Offenders.** Until 1908 there was no special judicial machinery for dealing with young offenders. The Children Act, 1908, set up juvenile courts to deal with delinquents aged 7-16. Under the Children and Young Persons Act, 1932, both the minimum and maximum age was raised 1 year, so that now no child under 8 can be charged with an offence (i.e. 8 is the age of criminal responsibility). In the case of a child aged 8-14, there is a presumption that he is not capable of criminal intent and it rests with the prosecution to rebut this presumption. In practice few children escape prosecution on these grounds. A young person (i.e. between the age of 14 and 17) charged with an indictable offence must be given the option of trial by jury. This is rarely exercised.

A juvenile court must sit in different premises or on a different day from the adult court. The juvenile courts can deal with all children and young persons charged with an offence other than murder or offences committed jointly with an adult. In the latter instance the adult court can remit the young offender to a juvenile court for a decision as to treatment, though this is not obligatory. The juvenile court also deals with children and young persons in need of care or protection, that is to say those who, having no parent or guardian, or a parent or guardian who does not, or is unfit to, exercise proper care and guardianship, are falling into bad associations, or exposed to moral danger or beyond control. Being found destitute, wandering, or begging is evidence of exposure to moral danger. Other children and young persons are included in the definition if certain specified offences have been committed against them or if they are members of a household in which such offences have been committed.

When dealing with an offender, the juvenile court sits as a court of summary jurisdiction bound by the same laws of evidence as an adult court and the procedure is in essence the same, though made less formal. No conviction is recorded when a juvenile is found guilty. The court 'makes an order'; it does not 'pass sentence,' but the finding of guilt is duly recorded and remains on the police

record. When dealing with care or protection cases, the courts sit in a civil capacity.

The decision of the juvenile court, according to the 1932 Act, must 'have regard to the welfare of the child or young person.' The aim therefore should be educative rather than punitive.

Absolute and conditional discharge (see CRIMINAL LAW), fines, and probation (qq.v.) apply to juveniles as to adults. In the case of a child a fine is normally imposed on the parents and not on the offender. Juvenile delinquents and children needing care and protection can both be placed under supervision of a probation officer.

The special methods of treatment available for juveniles are:

(1) Detention at a Remand Home for a period not exceeding 1 month (see REMAND).

(2) Attendance at an Attendance Centre in the case of offenders over 12. These centres were set up under the Criminal Justice Act, 1948, with a view to giving light disciplinary training. Attendance is on Saturday afternoons for not more than 12 hours in all and for not more than 2 hours on any occasion. The centres are generally run by the local police. Nearly all those so far set up have been for boys aged 12-14. There are none for girls.

(3) Commitment to a Detention Centre in the case of offenders over 14 (see CRIMINAL LAW). Two have been set up for boys aged 14-17 and a third has been planned.

(4) Commitment to the care of a fit person. This may be a private individual or, more often, the local authority.

(5) Commitment to an Approved School (q.v.). Both (4) and (5) apply to care or protection cases as well as delinquents.

No court of summary jurisdiction can commit anyone under 15 to prison. Young persons over 15 can be sentenced to imprisonment by Assizes if no other method is considered suitable. The number so committed is almost negligible.

The peculiarity of the Brit. system, which is found throughout the Commonwealth, is the very low age of criminal responsibility. In other countries this is usually 13 or 14, children below that age being dealt with by some form of welfare organisation which may be linked with the judiciary. There is therefore no police record when children up to the specified age commit what would be regarded as a criminal offence in this country. In Scandinavia the age of criminal responsibility is even higher than 14, and the Child Welfare Councils, that take the place of our juvenile courts, have no connection with the judicial system. In the U.S.A. the juvenile courts are chancery courts.

In the autumn of 1956 a Departmental Committee was set up to consider amongst other points 'the constitution, jurisdiction, and procedure' of the juvenile courts. The question of the age of criminal responsibility is likely to be one of the important points considered. See also CHILDREN AND YOUNG PERSONS, WELFARE

OF and CRIMINAL LAW. *See* J. Watson, *The Child and the Magistrate*, 1950; Sir W. Clarke Hall and A. C. L. Morrison, *Law Relating to Children and Young Persons* (5th ed.), 1956; W. A. Elkin, *English Penal System*, 1957.

**Juvenile Water**, water of volcanic origin which migrates into the outer portion of the earth's crust from the depths of the earth.

**Juventius, Celsus**, *see* CELSUS.

**Juvena**, *see* IRELAND.

**Juxon, William** (1582-1663), Archbishop

of Canterbury, educ. at Oxford. In 1609 he became vicar of St Giles's, Oxford, and about 1614 rector of Somerton. Among the other appointments that he held were those of president of St John's College (1621), vice-chancellor (1626), dean of Worcester, Bishop of London, and Lord High Treasurer. He was a staunch adherent of Charles I, and attended him on the scaffold. After the king's death he was deposed from office. On the accession of Charles II, however, he was made Archbishop of Canterbury



# K

**K**, the eleventh letter of the Eng. alphabet, is a back voiceless stop or guttural tenuis, produced by a closure between the back surface of the tongue and the velum. The original N. Semitic *kaph* was written  $\aleph$  or  $\aleph$ . The Gk *kappa* was originally written  $\kappa$ ,  $\kappa$  (like the Semitic alphabets, the earliest Gk alphabet was written from right to left). The Greeks had 2 signs for the *k*-sound, the *K* and the *Q*. The Etruscans, who took over the Gk alphabet, did not know the distinction between *g* and *k*, employed the Gk *gamma* (which they wrote  $\gamma$ , i.e. the reversed *C*; also they wrote from right to left) both for *g* and *k*; they had, therefore, 3 signs for the sound *k*, i.e.  $\gamma$  (= *C*), used only before *e* and *i*, *K*, used before *a*, and *Q*, employed before *u* (they had no *o*). The Lat. alphabet, derived from the Etruscan, adopted all the 3 letters (*C*, *K*, *Q*), with their phonetic values, but in time it dropped the *K* (it was retained, however, in a few well-known or official words, such as *kalendae*), and retained the sign *Q* for the *k*-sound followed by *u*. In late Lat. MSS. *k* was sometimes employed to represent the hard sound of *c* before palatal vowels (*e*, *i*, *y*). *K* does not occur in O.E., but in early M.E. MSS. it is used as a variant of *c*. M.E. *c* had the hard sound of *k* before *e*, *i*, where these were originally guttural vowels. After the Norman Conquest, words of Fr. origin came in use in which *c* had the soft sound of *s* before *e*, *i*. For the sake of clearness the words of native origin were written with a *k*; cf. O.E. *cynn*, *cynig*, Mod. E. *kin*, *king*, and Fr. *ci*té, Mod. E. *city*. In O.E. *c* had the hard guttural sound initially before consonants. In M.E. *c* was written as *k* before *n* and became silent, e.g. O.E. *cniht*, Mod. E. *knight*. In Mod. E. there are many words of Scandinavian origin with initial *k*, e.g. *keg*, *kill*, *kirk*, and many foreign words have been introduced, e.g. *koran*, *karangoo*. See ALPHABET.

**K2**, mt in the Karakoram, Kashmir; height 28,250 ft. *K2* is the world's second highest mt—750 ft lower than Everest. The name is a Survey of India sign meaning Karakoram Peak No. 2. Other names given to the mt, such as Mt Godwin-Auston, Dapsang, and Chogori, have fallen into disuse. The approach to *K2* is made from Srinagar by way of Askole, Shardu, and the Baltoro Glacier. Six attempts have been made to climb *K2*: 1902—an international expedition led by Oscar Eckenstein; 1909—It., led by the Duke of Abruzzi; 1938—Amer., led by Dr Charles Houston, who, like all after him, attacked by the S.E. spur, the Abruzzi Ridge; 1939—Amer., led by Fritz H. Wiessner, who with Pasang Dawa Lama reached 27,500 ft, but suffered in a disastrous descent when Dudley Wolfe and 3 Sherpas *d.* in a snowstorm; 1953—

Amer., led by Dr Houston, when all 8 climbers were stormbound 6 days at 25,400 ft, until descent was forced by Gilkey's developing a fatal illness—a descent surpassing in epic quality even that of Annapurna; 1954—It., led by Prof. Ardito Desio, whose team won the summit. Ropes were fixed on the whole length of the Abruzzi Ridge. On 31 July Compagnoni and Lacedelli reached the top. They made this ascent without oxygen apparatus. See Filippo de Filippi, *Karakoram and Western Himalaya*, 1909; R. G. H. Bates, *Five Miles High*, 1940; C. S. Houston, *The American Karakoram Expedition to K2, 1938, 1939*; *Himalayan Journal*, 1940, 'The American Expedition to K2, 1939'; Ardito Desio, *La Conquista del K2*, 1954; C. S. Houston and R. G. H. Bates, *K2—The Savage Mountain*, 1955.

**Kaaba** (Arabic *ka'ba*, 'cube') is a relic of Arabian heathenism. It is a building about 40 ft long, 32 ft wide, and 49 ft high. It has been rebuilt more than once and was once extended to include an area to the NW. Now it is an empty room, though it contained idols in the Time of Ignorance. The corners face the cardinal points, and set in the E. corner is the Black Stone which was white when it fell from heaven but turned black for the sins of men. Stories vary; one says that angels built it for Adam and another that Abraham with the aid of his son built or rebuilt it. Circumambulation of the *K.* is a religious act. The door can only be reached by a movable step-ladder; it is seldom opened and most people have to pay for the privilege of entering. Every year the *K.* is given a covering of black damask which is now supplied by Egypt. The curtain over the door and a band round the building bear inscriptions in gold.

**Kaapland**, see CAPE (CAPE OF GOOD HOPE) PROVINCE.

**Kaapstad**, see CAPE TOWN.

**Kab, El**, in Upper Egypt, on r. b. of the Nile, about 40 m. S. of Luxor, site of Nekheb, the prehistoric cap. of Upper Egypt, situated opposite the early royal residence of Nekhen (Hierakonpolis). The goddess of Nekheb, called Nekhet, 'she of Nekheb,' had the form of a vulture. Nekheb was identified with Eileithyia by the Greeks, who called *K. Eileithyiaspolis*. There are ruins of sev. temples and some important rock-tombs, including that of Ahmes, son of Ebana, with important biographical inscription covering the first 3 reigns of the 18th dynasty.

**Kabalevsky, Dmitry Borisovich** (1904—), Russian composer, b. St Petersburg, studied at the Moscow Conservatory. He is prof. of composition there. His works include 3 operas (*The Craftsman of Clamecy* is based on Romain Rolland's *Colas Breugnon*), 2 ballets, incidental, film,

and choral music, 2 symphonies, a concerto for piano and 2 for violin, a string quartet, piano pieces, and songs.

**Kabarda**, autonomous rep. in N. Caucasus, situated on the slopes of the main Caucasian range, largely W. of the R. Terek bend. Area 4600 sq. m.; pop. 300,000, mostly Circassians (q.v.) and Russians (before 1943 also Balkars, q.v.). There are coal mining and food industries, grain and sunflower growing, and cattle, sheep, and horse (K. breed) breeding. The cap. is Nal'chik. K. became a Muscovite protectorate in 1552, was contested by Russia, Crimea, and Turkey in the 17th and 18th cents., and finally became Russian in 1825. It belonged to the anti-Communist S.-E. League (q.v.), 1917-18, and the Mountain People's Autonomous Rep. in 1921; K. Autonomous Oblast was formed in 1921, K. Balkar Autonomous Oblast in 1922, Autonomous Rep. in 1936, and K. Autonomous Rep. in 1946. See W. Kolarz, *Russia and Her Colonies*, 1952.

**Kabbala**, see CABBALA.

**Kabul**, city, cap. of Afghanistan, on the K. R., 80 m. NNE. of Ghazni, at the foot of the Takht-i-Shah Hills, and also the name of a major prov. of Afghanistan. K. is of great antiquity, and was formerly walled. It is an ant. largely mud-built city, but is progressing. The K. Univ. was estab. in 1932. K. is well situated, has a splendid water supply, and is noted for its fruit. The high court of K. is the supreme judicial authority of Afghanistan. Situated at the junction of sev. central Asiatic trade routes, K.'s commerce is extensive, especially in carpets, camel's hair, cloths, and all kinds of skins. There are gov. factories and workshops designed partly for public instruction in mechanical appliances. Pop. (estimated) 120,000. See Rosita Forbes, *Forbidden Road—Kabul to Samarkand*, 1937, and Maud Dyer, *Kabul to Kandahar*, 1935.

**Kabul River**, rises in the Hindu-Kush, flows E. through Kabul and Jalalabad, and joins the Indus at Attock. It is 270 m. long.

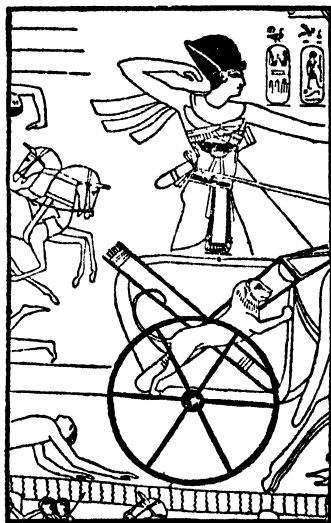
**Kabushan**, see QUCHAN.

**Kabyles**, name given to a collection of tribes of N. Africa, chiefly in Algeria, whose members are of the Berber race. The men frequently serve as Fr. soldiers, the famous Zouave regiments taking their name from the most common dialect of the K. See also BERBERS.

**Kadavu**, or **Kandavu**, is. of the Fiji (q.v.) group, some 50 m. S. of Viti Levu. It is mountainous, with fertile valleys; copra and fruit are the chief products. Area 157 sq. m.; pop. c. 6500.

**Kadesh**, name of sev. places in Palestine, which signifies consecrated. K. or K. Barnea was the resting-place of the Israelites before entering the Holy Land, and was the scene of the people's demand for water, whence it derived its new name, Meribah K. It is named in the story of Abraham (Gen. xiv. 7; *En Mishpat*, 'spring of judgment', *ibid.* xvi. 14). Here **Korah** (q.v.) headed the revolt against Moses; Miriam d. here; and the water

which had failed was miraculously restored (Num. xvi, xx). Ain Qadis, about 50 m. S. of Beersheba, seems to meet all the requirements of the narrative and must always have been a centre of meeting for the tribes wandering over the wide wilderness. Mention is also made of 2 places called K. in 1 Chron. vi. 72, 76. One was the K. 'out of the tribe of Issachar,' whilst the other was the K. 'in Gallilac, out of the tribe of Naphtali.' K. (or Qadesh) is also the name of an ant. city on the Orontes in Syria, scene of the battle between the Kheta (or Khita) and Rameses II of Egypt. See HITTITES.



RAMESSES II IN HIS CHARIOT AT THE BATTLE OF KADESH

**Kadi**, see CADL.

**Kadikouli**, see CHALCEDON.

**Kadina**, tn of S. Australia, on the Yorke Peninsula, 91 m. from Adelaide. The discovery of copper in the dist. gave birth to the tn but the mines were closed in 1923. It is the centre of a rich wheat-growing dist. It has a high school and technical school. There are also a race-course and a trotting track. Pop. 5000.

**Kadiyevka**, tn in the Lugansk oblast of Ukraine (q.v.), 28 m. W. of Lugansk. It is one of the main industrial centres of the Donets Basin (q.v.), producing about a quarter of the coal mined in Lugansk oblast; it has coking, chemical, and metallurgical plants. Founded in the 1840's as a coal-mining settlement, it has been a tn since the 1930's; its industrial development dates from the late 19th cent. and more particularly from the 1930's. The Stakhanov move-



ment (q.v.) started here in 1935. Pop. (1956) 170,000 (6th in Donbas; 1926, 17,000; 1936, 75,000; 1939, 68,000).

Kadzand, see CADZAND.

**Kaempfer**, Engelbrecht, see KÄMPFER. **Kaempferia**, genus of rhizomatous herbs of E. tropical Asia, family Zingiberaceae, about 50 species. They thrive under warm greenhouse conditions, given abundant water during growth, but they should be kept dry during the dormant period.

**Kaffa**: 1. Prov. in the Galla country, forming part of Ethiopia. It consists of a large plateau, and is partly drained by the R. Omo. It is regarded as the native home of the coffee plant, which grows there abundantly. Estimated pop. 1,200,000.

2. The ancient kingdom of K. or Kafa in SW. Ethiopia was overthrown by the Ethiopians in 1897, and its organisation and customs thereby radically altered. The ritual surrounding the kingship was elaborate, and possibly connected with that of ancient Egypt and of the modern Bantu kingdoms of Buganda, Bunyoro, Ankole, and Ruanda (q.v.). It was one of the more famous examples of a divine kingship. See G. W. B. Huntingford, *The Galla of Ethiopia and the Kingdoms of Kafa and Janjero*, 1955.

3. See FEODOSIYA.

**Kaffir**, see NGUNI.

**Kaffir Lily**, see SCHIZOSTYLIS.

**Kaffiraria** is a term loosely applied to the whole of the regions occupied by the various K. tribes, but it is better to confine it to Brit. K. and K. proper, though even these latter names have become obsolete. Brit. K., which is now known as the Ciskei, and K. proper extend, the former from the Keiskama R. to the Great Kei R., the latter from the Great Kei to Natal. Embracing an area of some 22,000 sq. m., they comprise an extremely fertile region, lying near the coast, abundant in forests, rivers, and mts. Brit. K. became a separate prov. in 1847, after the Kaffir war; in 1865 it was incorporated into Cape Colony. See also KAFFIR.

**Kafka**, Franz (1883-1924), Austrian novelist, b. Prague of Jewish parents. His youth and indeed his whole life were overshadowed by the dominant personality of his father. The conflict with authority, and at the same time the urge to receive its recognition, found expression in his work as a novelist. His best novels, *Der Prozess*, 1925 (Eng. trans. *The Trial*, 1937), *Das Schloss*, 1926 (Eng. trans. *The Castle*, 1930), and *Amerika*, 1927 (Eng. trans. *America*, 1938), are spiritual autobiography, portraying in allegory borrowed from dream, and bordering on nightmare, the isolation of the human soul in its attempt to come to terms with the world. Comparatively little was pub. during his lifetime. After taking his doctorate in jurisprudence at the Ger. univ. of Prague in 1906, he became a gov. clerk in the Workers' Accident Insurance Institute. Writing he regarded as a sacred vocation, a 'form of prayer.' His first pub. work (1913)

was a collection of short stories, *Betrachtung* ('Observation'). *Der Heizer* ('The Stoker'), afterwards the first chapter of *Amerika*, and *Das Urteil* ('The Sentence') appeared in periodicals the same year, and were pub. in Leipzig in 1916. The following year tuberculosis developed, but it was not until the last year of his life, in 1924, that he went into the sanatorium at Kierling, where he d. A posthumous collection of stories, *Beim Bau der chinesischen Mauer*, was pub. in 1931. His reputation was also increased by the miscellaneous writings, letters, and journals, collected and pub. by his friend, Max Brod, in 6 vols., *Gesammelte Schriften*, 1935-7. K.'s work showed throughout the influence of Jewish folklore and theological writing. K.'s *Diaries* have been ed. by Max Brod, and trans. into English (vol. i, 1948; vol. ii, 1949). See also life by Brod (trans. 1937); H. Tauber, *Franz Kafka, an Interpretation of his Works* (trans. 1948); C. Neider, *Kafka: His Mind and Art*, 1949.

**Kaganovich**, Lazar' Moiseyevich (1893- ), Russian Communist of Jewish origin, who started life as a leather-worker. He joined the Bolshevik party in 1911 and was active in the leather-workers' union. He led the seizure of power by the Bolsheviks in Gomel, then specialised in the organisational work of the party, quickly rising to important positions. In 1924 he became member and secretary of the party's Central Committee; from 1925 to 1928 he was head of the party organisation in the Ukraine, and from 1928 to 1939 he was again secretary of the Central Committee. From 1930 to 1935 he was also secretary of the Moscow Committee, and since 1930 he has been a member of the Politburo (q.v.). He was in charge of the collectivisation of agriculture (q.v.), 1929-34, and of the party purge, 1933-4. From 1935 to 1944 he was minister of transport and simultaneously directed other ministries; since 1938 he has been a deputy prime minister. During the Second World War he was a member of the State Defence Committee, and a political commissar in the Caucasus. From 1947 he again headed the party organisation in the Ukraine. K. was one of Stalin's chief lieutenants, both in the struggle against his opponents and rivals and in ruling the party and the country, but his influence declined in the last years of Stalin's life. After Stalin's death in 1953 K. became more prominent again, but in 1957, together with Malenkov and Molotov (q.v.), he was expelled from the Politburo and the Central Committee and dismissed from the post of a first deputy prime minister for opposing the concentration of power in the hands of Khrushchev (q.v.), and the latter's policy.

**Kagoshima**, city of Kagoshimaken, Japan, in Kyushu Is., 90 m. SSE of Nagasaki. The seat of the prefectural gov., it manufs. pottery in imitation of 'old Satsuma' ware, cottons, silk, glass, starch, caramel, vegetable oil, and cigarettes. In 1863 Brit. warships bombarded K. following the murder there of

one Richardson. In the Seinan Rebellion (1877) K. was a rebel base. Pop. 274,000.

**Kahn, Gustave** (1859-1936), Fr. poet, novelist, and critic, b. Metz. He came to Paris, and in 1885 founded, with others, the review *La Vogue*, and later *Le Symboliste*. K. was one of the first to formulate the theory of the *vers libre*; and in his *Palais nomades*, 1887, he showed complete disregard for the traditional rules of poetic art. His poetry, such as *Premiers poèmes, avec une préface sur le vers libre*, 1897, is perhaps less important than his influence on poets such as Mallarmé and Claudel. His novels include *L'Adultère sentimental*, 1902, and *L'Aube enamourée*, 1925. See A. v. Bever and P. Léautaud, *Poètes d'aujourd'hui*, 1929.

**Kai, Kel, or Key Islands**, group in the S. Moluccas, Indonesia, in the Banda Sea. Products are timber, copra, and trepang. The K. I. were colonised by the Dutch in 1645. They became part of Indonesia in 1950.

**Kaletsur**, cataract of Potaro R., a trib. of Essequibo R. in Brit. Guiana. See further under ESSEQUIBO.

**Kaifeng** (formerly Pienliang), former cap. of Honan prov., central China, 3 m. from the Yellow R. It was the cap. of the N. Sung dynasty (AD 960-1126), and has possessed a Jewish colony since 1183. K. is the site of Honan Univ. Chuhsien, near by, is one of the prin. Chinese marts. Pop. 450,000.

**Kailas**, mt. range of SW. Tibet. Its highest peak (22,028 ft high) is the sacred 'Olympus' of the Hindus. It is between the N. chain of the Himalaya and the Kangri Mts. N. of Lake Manasarovar. The Indus, Sutlej, and Brahmaputra rivs. rise from it.

**Kailin**, see CAILLIN.

**Kails**, see SKITTLES.

**Kallyard School**, name applied in derision to the idealist school of Scots novelists of which J. M. Barrie, 'Ian Mac-laren' (John Watson), and S. R. Crockett (qq.v.) were the leading members. The term first appeared in the *New Age* for April 1895, and was taken from the opening line of a Jacobite song, 'There grows a bonnie brier bush in our kallyard,' from which Ian Mac-laren had borrowed the title of his novel *Beside the Bonnie Brier Bush*, 1894, which had great popularity. A counterblast to the idealised pictures of Scottish rural life drawn in the works of the K. S. was the sordid realism of *The House with the Green Shutters*, 1901, by George Douglas Brown.

**Kain**, see QAYEN.

**Kainite**, deliquescent crystalline substance whose formula is  $KCl \cdot MgSO_4 \cdot 3H_2O$ . It is found in the deposits at Stassfurt (Germany) together with many other salts which owe their origin to the drying up of an inland sea, or salt-water lake. Another locality is Kalusz on the E. Carpathians. K. is used as a fertiliser, and as a source for the preparation of magnesium and potassium compounds, though it is of less importance than carnallite,  $KCl \cdot MgCl_2 \cdot 6H_2O$ , also found in the Stassfurt deposits.

**Kairouan, or Kairwan (Qairwan)**, city of

Tunisia, 30 m. SW. of Sousse, is an ancient holy place frequented by Muslim pilgrims. It has a citadel and numerous mosques. It was taken by the French in 1881. The caravan trade is considerable; the chief articles of commerce are carpets, morocco-leather goods, and copper wares. Pop. 32,299 (chiefly Arabs). See G. Marçais, *Cupole et plafonds de la grande mosquée de Kairouan*, 1925.

**Kairwan**, see KAIROUAN.

**Kaisarieh**, see KAYSERI.

**Kaisar-i-Hind**, 'Emperor (or Empress) of India'; title applied to Queen Victoria and subsequent Brit. monarchs as emperors of India. A K. medal was instituted under Brit. rule, which was awarded for outstanding public social service.

**Kaiser, Georg** (1878-1945), Ger. dramatist, b. Magdeburg, and educ. at the gymnasium there. He began to earn his living at Buenos Aires in an electrical undertaking, but ill health compelled his return to Germany. His earliest dramatic pieces were farces, but he soon found his true bent lay in serious plays turning on social problems. He is recognised as a disciple of Expressionism (q.v.), dealing with types, and making much use of allegory. His work shows the influence of Wedekind. Plays: *Die jüdische Witwe*, 1911; *Von Morgens bis Mitternachts*, 1916 (Eng. trans. 1920); *Die Versuchung*, 1917; *Gas* (2 parts), 1918, 1920, one of the best known expressionist plays, illustrating the domination of man by machines of his own devising; *Der Brand im Opernhaus*, 1918; *Kolportage*, 1924; *Papiermühle*, 1926; *Die Lederkneipe*, 1928; *Oktobertag*, 1928; *Der Soldat Tanaka*, 1940; *Zweimal Amphitryon*, 1943. Novels: *Es ist genug*, 1932; *Villa Aurea*, 1940. See study by B. Diebold, 1924, and E. A. Fivian, 1947.

**Kaiser, Henry John** (1882- ), Amer. industrialist, b. Sprout Brook, New York, son of Ger. immigrants. Beginning his career at 13 in a New York store, at 22 he was junior partner in a photographic firm, and purchased the business within a year. In 1906 he went to Spokane and joined a hardware company; in 1912 he joined a construction company, and by 1914 he had estab. his own company and gained contracts for highway construction in the Pacific NW. and California. In 1927 came a contract to build 200 m. of highway with 500 bridges in Cuba, and he afterwards participated in the building of Hoover, Bonneville, Grand Coulee, and Shasta Dams, and in such projects as the piers of San Francisco Bay bridge, levees on the Mississippi, and pipelines in the NW., SW., and Mexico. In 1939 he founded the Permanente Cement Co., one of the largest in the world. During the Second World War the K. shipbuilding yards estab. a world-wide reputation for speedy construction, and K.-managed companies made substantial contributions to the U.S. war effort. K. Motors (since 1955 K. Industries Corporation) is the third largest U.S. exporter of commercial vehicles. The K. Foundation, a non-

profit-making charitable trust, has been estab. to build self-supporting hospitals and medical centres where a pre-payment health plan provides for medical attention; there are 50 hospitals and out-patient centres in the system, and 2 institutes of physical medicine and rehabilitation.

**Kaiser** (Lat. Caesar), name given to the emperors of the Holy Rom. Empire, and to the rulers of the Ger. and Austro-Hungarian empires before the First World War (1914).

**Kaiser Karlsbad**, see KARLOVY VARY.

**Kaiser Wilhelm Canal**, see KIEL CANAL.

**Kaiser Wilhelm II Land**, Australian Antarctic Ter., see ANTARCTICA.

**Kaiserslautern**, Ger. tn in the Land of Rhineland-Palatinate (q.v.), 44 m. SW. by S. of Mainz (q.v.). It was a favourite retreat of the Emperor Frederick I (q.v.), whose ruined castle still exists. There are 2 notable medieval churches. K. is an important industrial tn, with manufs. of cotton yarn, sewing-machines, furniture, and tobacco. It has also railway shops and iron works. Pop. 85,000.

**Kaka**, Maori name for a New Zealand parrot, *Nestor meridionalis*. It is light brown, variegated with grey on the crown and dark red beneath. The name, like cockatoo, is imitative. The kakapo, also a New Zealand parrot (*Strigops habroptilus*), has green plumage mixed with yellow and brown, and a disk of feathers round its eyes, whence its popular name, owl parrot. It cannot fly, its wings being used only for balance.

**Kakaterro Tree**, see DACRYDIUM.

**Kakhetia**, area in E. Georgia (Transcaucasia), in the valley of the Alazani, a trib. of the Kura. It is a famous wine-producing area. The prin. tn is Telavi. It was an independent kingdom from the 8th cent., part of the Georgian kingdom from 1010, again independent 1468-1762, then in the E. Georgia kingdom which joined Russia in 1801.

**Kakhovka**, tn in the Kherson Oblast of S. Ukraine, riv. port on the Dnieper. It has a large hydro-electric station (250,000 kW.). Before 1917 a lively trade centre, it was the scene of fierce fighting in the Russian civil war (1920). It includes the tn Novaya K., founded in 1951 at the building site of the power station. Pop. (1956) 19,000.

**Kakiemon**, see PORCELAIN, *Hard-paste*.

**Kalafat**, see CALAFAT.

**Kalahari**, tract of country in S. Africa, between the Zambesi and Orange R.s. forming a large part of the Bechuanaland Protectorate, is often called the K. desert, although true desert conditions do not prevail, for many parts are at times covered with grass and scrub, which provide cover for game. It consists of sandy plateaux, containing 'salt pans,' probably remnants of inland lakes now dried up. There is a very slight rainfall, and all the rvs. are periodic except the Okavango, flowing into Lake Ngami which is now only a swamp. It is believed that good water could be obtained by well-sinking in many parts, and that K. would then provide 20,000 sq. m. of fine ranching

country. Prof. E. H. L. Schwartz in 1918 formulated a scheme for restoring the lakes of the K., and so ending the country's drought problem. He claimed that these lakes had been drained away by the Zambesi, but that by an expenditure (variously estimated up to 25,000,000) the water could be diverted into them again, and not only would the danger of a desert encroaching on S. Africa be avoided, but the very existence of the lakes would cause such a rainfall as to relieve the Union of its periodic danger of drought. But in 1945 Mr Conroy, minister of lands and irrigation, and a group of M.P.s representing all parties toured the K. area, and subsequently issued a report to the effect that the Schwartz scheme was neither practicable nor would it produce the results envisaged by its author. The inhab., Bushmen and Bakalahari, live chiefly by hunting and number about 50,000. See G. A. Farini, *Through the Kalahari Desert*, 1886; S. Passarge, *Die Kalahari*, 1907; W. J. Makin, *Across the Kalahari Desert*, 1929; L. A. Mackenzie, *Report on the Kalahari Expedition*, 1945.

**Kalamata**, see CALAMATA.

**Kalamazoo**, city, cap. of K. co., Michigan, U.S.A., on K. R. midway between Detroit and Chicago, in a celery, fruit, and peppermint growing area. It manufs. paper, stoves, pharmaceuticals, fishing tackle, etc. It is the site of K. College, W. Michigan College, K. Museum and Art Institute. Pop. 57,700.

**Kalanchoe**, genus of sub-shrubs with succulent leaves, family Crassulaceae, over 100 species, chiefly tropical; *K. blossfeldiana* is much grown for winter decoration.

**Kalat**, **Khelat**, or **Kelat**, small semi-independent state forming part of the prov. of Baluchistan (q.v.) in Pakistan.

**Kalat Seman**, ruined city of N. Syria, about 25 m. N. of Aleppo. The church of St Simeon Stylites (460-560) is one of the best examples of Christian Syrian architecture, showing Byzantine influence.



**Kale**, or **Borecole**, *Brassica oleracea acephala*, form of cabbage with open

leaves, extremely hardy and grown as a winter vegetable in Europe. There are many varieties—Scotch or Curled K., Cottager's K., Russian K., Thousand-headed K., and strains grown for winter cattle fodder.

**Kaledin, Aleksey Maksimovich** (1861–1918), Russian general, in July 1917 elected Hetman (q.v.) of the Cossack armies. After the seizure of power by the Bolsheviks he was the head of the anti-Bolshevik Don Cossack gov. On being defeated by the Bolsheviks he shot himself.

**Kaleidoscope**, optical device invented by Sir David Brewster (q.v.) in 1817. It is a tube about a foot long, along the whole length of which extend 2 mirrors or reflecting glass plates placed at an angle of 60°. One end of the tube is closed with a metal plate having a small hole or eye-glass, whilst the other end is closed with 2 glasses separated by a small space containing a number of small fragments of coloured glass. On turning the tube round its axis various brightly coloured patterns with 6-fold symmetry appear successively before the vision.

**Kalenberg**, see CALENBERG.

**Kalends**, see CALENDIS.

**Kalevala**, or **Kalewala**, national epic of the primeval Finnish race, which was probably composed at different times by various bards. The scattered songs were first collected into a written form by Dr Topelius in 1822, which ed. was followed by the more complete and systematic one of Dr E. Lönnrot in 1835. The poem relates the story of Väinämöinen, Ilmarinen, and Lemminkäinen, the 3 sons of Kalewa (Finland), and deals entirely with the ant. mythology and folklore of the early Finns. It has been a source of inspiration to Sibellus and other composers. Longfellow borrowed its metre and some of its characters and incidents for his *Song of Hiawatha*. See Eng. trans. by W. F. Kirby (Everyman's Library).

**Kalgan**, or **Changkiakau**, tn in Inner Mongolia, China. It is situated near the Great Wall, and lies about 120 m. NW. of Peking. It occupies an important position commercially, as it lies at the foot of a pass on the route from Peking to Siberia, and is the centre of the tea trade between the two. Pop. (estimated) 30,000.

**Kalgoorlie-Boulder**, joint tn and dist. of W. Australia, formerly **Hannans**. Gold was first mined there in 1893, and it is now the greatest gold-producing dist. of the continent, production in 1954 exceeding £13,000,000 in value. It has an arid climate, but the tn has modern amenities, and has a water supply pumped 400 m. from the coast. K. is a junction for the transcontinental line to S. Australia. Pop. (tn) 22,834.

**Kalguev**, see KOLGUYEV.

**Kālī** (black), in Hindu mythology, the goddess of death and destruction and one aspect of Durga, the wife of Siva. She is represented as black, with 4 arms and blood-stained face, breast, and palms.

**Kālidāsa**, Hindu poet of the post-Vedic period of Sanskrit literature. The dates

of his life are extremely uncertain. He seems to have lived during the reign of Vikramāditya of Ujjain, but as there were sev. monarchs of that name from 57 BC to AD 1050, this does not assign any very definite limits. He has been traditionally assigned to the 1st cent. BC, but modern scholarship tends to place him considerably later. His most famous works are his dramas, especially *Sakuntala*, which, when first introduced to Europe through the trans. of Sir Wm Jones in 1789, was received with great admiration. A later trans. by Monier Williams appeared in 1856. His other dramas are *Vikramorvasi* (The Hero and the Nymph), containing some fine lyrical passages, and *Mālavikāgnimitra*, a comedy. There are also assigned to him 2 epic poems, *Raghuvamśa*, trans. into English by P. de Lacy Johnstone, 1902, and *Kumdra Sambhava*, only remarkable for isolated passages, and differing so greatly that it seems doubtful if they can be credited to the same author; and sev. lyrics, the best, *Meghaduta* (The Cloud Messenger), being very beautiful. *Nalodaya*, a poetical romance, trans. by Rev. W. Yates, 1844, is also ascribed to K. See A. A. Macdonell, *History of Sanskrit Literature*, 1900, and A. Hillebrandt, *Kālidāsa: ein Versuch zu seiner literarischen Würdigung*, 1921.

**Kalings**, one of the 9 ant. kingdoms of S. India, extending, according to tradition, along the E. coast of Madras from 13° 30' to 18° 30' N.

**Kalinin, Mikhail Ivanovich** (1875–1946), Russian Communist, for many years the titular head of the Soviet State. K. was of peasant origin and until 1917 a metalworker. He joined the Social Democratic movement in 1897 and its Leninist wing (see ISKRA) in 1902, but was always of comparatively moderate views. During the First World War he was against Lenin's policy of defeatism, and after the Feb. revolution (q.v.) in 1917 he again opposed Lenin's aim of a Bolshevik seizure of power. He became a Central Committee member in 1919, and a Politburo (q.v.) member in 1926. From 1919 to 1937 he was chairman of the Central Executive Committee of the Soviets (see SOVIETS) of the Russian Rep., from 1922 also of the U.S.S.R. Central Executive Committee. He was chairman of the Presidium of the U.S.S.R. Supreme Soviet, 1937–46. In the party struggle after Lenin's death K. followed Stalin's lead. K.'s position was titular rather than influential; he was a likable person and easily accessible, and tried to ease hardship in individual cases that came to his notice.

**Kalinin** (until 1931 **Tver'**): 1. Oblast in central Russia, NW. of Moscow. It is situated on the Valdai moraine upland, and partly covered with mixed forests. There are peat and lignite deposits. Industries include textiles, engineering, saw-milling, tanning, and shoe-making; there are also old handicrafts and home industries. Flax and potatoes are grown and there is dairy cattle breeding. The prin. tns are K., Vyshniy Volochék, and Rzhev. In the 19th cent. Tver' prov. was

renowned for its liberal-minded local gov. Area 25,500 sq. m.; pop. (1956) 1,604,000, mostly Russian, partly also Karelian (since 16th-17th cents.).

2. Cap., economic and cultural centre of the above, on the Volga and the Moscow-Leningrad railway. There are large textile and engineering (rolling-stock, textile and peat-working machinery) industries. It has a 16th-cent. church and many interesting 18th-19th-cent. buildings. Known since 1135, from the 1240's it was the cap. of Tver' principality (later Grand Principality), which after prolonged rivalry with Muscovy was absorbed by the latter in 1485. It was an important centre of crafts and commerce in the 14th-15th cents. In 1466-72 the Tver' merchant Nikitin travelled to India. Pop. (1956) 240,000 (1914, 66,000; 1917, 101,000; 1920, 166,000; 1936, 171,000; 1939, 216,000).

**Kalinograd:** 1. Oblast in the NW. of the Soviet Union, comprising the N. part (about one-third) of the former Ger. prov. of E. Prussia. It belongs to the Russian Federal Soviet Socialist Rep., but is not territorially connected with the rest of the rep. and is bounded by the Baltic Sea in the W., Lithuania in the N. (along the R. Niemen) and E., and Poland in the S. It is a slightly hilly lowland, partly covered with well-kept mixed forests. There are varied engineering, wood-working, and food industries, and intensive agriculture. The chief tns are K. (see below) and Sovetsk (see TILSIT). The area has been under Soviet administration since 1945, pending a Ger. peace treaty. K. oblast was formed in 1946; for its earlier hist., see EAST PRUSSIA. Area 6100 sq. m.; pop. (1956) 621,000, mostly settlers from Central Russia (the far larger Ger. pop. was deported or expelled after 1945).

2. Cap. (until 1946 called **Königsberg**), economic and cultural centre of the above oblast, an important ice-free port on the Frisches Haff (now Vistula Bay) in the Baltic Sea. K. has shipbuilding, engineering, chemical, wood-working, and food industries. Königsberg grew up around a castle of the Teutonic Knights (fl. 1255); it was from 1457 the residence of the High Master of the Order, from 1525 to 1618 of the dukes of Prussia; cap. of E. Prussia, 1618-1945. Its famous univ., founded 1544, was abolished in 1945. The inner city was ruined during the 1945 siege. See also EASTERN FRONT.

**Kalinjar**, isolated hill fortress and shrine in India, on a spur of the Vindhya Mts in the extreme S. of Uttar Pradesh state. K. is of extreme antiquity, and is mentioned in the *Mahābhārata*. On all sides of the hill are ruins of anc. statues and temples, the latter including the celebrated Nii Kantha Mahadeo.

**Kallaz**, city of Poland, in Poznań prov., on the Prozna, 68 m. SE. of Poznań (q.v.). It is the *Gallia* of Ptolemy (q.v.), and has remains of great antiquity. In the Middle Ages it was an important textile tn. It went to Prussia in 1793, and to Russian Poland in 1815. In 1706 the Swedes were defeated here by Augustus II (q.v.) of

Saxony and Poland, and in 1813 a treaty of alliance between Prussia and Russia (against Napoleon I, q.v.) was signed in the tn. In modern times it was the cap. of a Polish prov. Metal goods, embroidery, and foodstuffs are manuf., and there are lignite mines in the dist. Pop. 56,000.

**Kalkstickstoff**, or Nitrolime, mixture of calcium cyanamide, CaCN<sub>2</sub>, and carbon, made by heating calcium carbide in nitrogen to a temp. of about 1000° C. It contains 21 per cent nitrogen and is largely used as a fertiliser but under some circumstances is an effective weed-killer.

**Kallio**, Kyösti (1873-1940), Finnish statesman and patriot. He was sev. times Prime Minister, being in office at the outbreak of the Russo-Finnish war in 1939. His gov. was compelled to yield in 1940 as the result of Mannerheim's defeat in the war with Russia, and K. resigned (Nov. 1940) on account of ill health through his anxieties, dying a few days later. See also FINLAND, *Finnish-Russian War, 1939-1940*.

**Kalmar**, fortified seaport tn of Sweden, 47 m. NE. of Karlskrona, is the cap. of K. prov. (area 4456 sq. m.). It is built mostly of wood on the is. of Quarnholm in K. Sound, and connected with the mainland by a bridge of boats. The chief manufs. are matches and paper. It has a good harbour, and does a considerable coasting trade. There is a fine 17th-cent. cathedral and a castle dating from the 12th cent. In 1397, by the K. Union, the crowns of Denmark, Norway, and Sweden were united under the sovereignty of Queen Margaret. Pop. (tn) 28,714; (prov.) 237,462.

**Kalmia**, genus of evergreen or rarely deciduous shrubs, about 7 species, family Ericaceae, of lime-free soils. *K. latifolia*, Mountain Laurel or Calico-Bush, is a dense, rounded shrub or tree, up to 25 ft, with saucer-shaped, pink or white, 1-in. diameter flowers in terminal clusters in May and June. *K. angustifolia*, Sheep Laurel, grows 2 to 3 ft tall, with smaller, purplish-rose flowers, and is poisonous to grazing animals. Both species are native to E. N. America, and are grown in gardens.

**Kalmthout**, small tn in Belgium, 12 m. N. of Antwerp, in the heart of the picturesque Kempen (Campine) Heath. It is a favourite country resort of the Antwerp citizens. There are extensive tree nurseries. Pop. 10,100.

**Kalmucks**, or Kalmuks, see KALMYKS.

**Kalmyks**, Mongol-speaking and seminomadic Buddhist people. Until the 17th cent. they lived in E. Turkestan (see SINKIANG), then they moved W. and, pushing the Nogays (q.v.) further SW., occupied the area astride the lower Volga, between the R.s Don and Ural. In 1771 the majority (c. 300,000) went back, but most of them perished on the way in fighting the Kazakhs (q.v.). The minority (50,000) remained W. of the Volga and later partly became Cossacks (q.v.). After the Oct. revolution (q.v.) the K. first belonged to the anti-Bolshevik SE. League

(q.v.); a Kalmyk Autonomous Oblast was created in 1920, and transformed into an Autonomous Rep. in 1935. In 1939 it had 200,000 inhab., including 130,000 K. Partly occupied by the Germans in 1942, it was abolished in 1943 by the Soviet Gov. and all K. deported to Central Asia. The 1957 decree on rehabilitation of the deported peoples provides for their return and the re-estab. of a Kalmyk Autonomous Oblast. See W. Kolarz, *Russia and her Colonies*, 1952.

**Kalocsa**, tn of Hungary, in Bács-Kiskun co., 45 m. SW. of Kecskemét (q.v.). It has been an eccles. centre since the time of King Stephen I (q.v.), and has a fine cathedral, an archiepiscopal palace, and anot monasteries. There is a trade in agric. produce, livestock, bricks, vines, and flax. Pop. 13,000.

**Kalomiris**, Manolis (1883- ), Gk composer, studied in Athens, Constantinople, and Vienna. He founded the National Conservatory of Athens in 1926 and became its director. His works include an opera based on Yeats's *The Shadowy Water*, incidental music, 2 symphonies and symphonic poems, chamber music, piano pieces, songs, and arrangements of folk-songs.

**Kalomo**, tn of N. Rhodesia, 90 m. NE. of the Victoria Falls. It was once the centre of administration, which was transferred to Livingstone, thence to Lusaka.

**Kalong**, Great, see FRUIT-BAT.

**Kalpa-sūtra**, or *Kalpa-soutra*, name of certain Sanskrit writings dealing with the ceremonial connected with Vedic sacrifice. It is also the name of the most sacred book in Jain literature. See Jacobi, *The Kalpa-sūtra of Bhadrabahu*, 1879, and W. Weber, *Sacred Literature of the Jains* (trans.), 1893.

**Kaluga**: 1. Oblast in central Russia, SW. of Moscow, situated in the NW. of the central Russian upland, and partly covered with mixed forests. There are lignite and phosphorite deposits. Coarse grains, potatoes, and hemp are grown, and dairy cattle, hogs, and poultry (K. geese) are raised. There are engineering, wood-working, paper (since 1720), textile, and food industries. Area 11,600 sq. m.; pop. (1956) 895,000.

2. Cap., economic and cultural centre of the above, on the Oka (head of navigation). There are transport and electrical engineering, wood-working and food industries. It has many interesting 18th-19th-cent. buildings, and a drama theatre, founded in 1777. Known from 1389 as a Muscovite outpost, K. was an important centre of the grain trade in the 17th-19th cents. It was briefly occupied by the Germans in 1941. Pop. (1956) 122,000 (c. 1914, 55,000; 1920, 41,000; 1939, 89,500).

**Kalundborg**, tn and seaport on the W. coast of Zealand, Denmark, 58 m. W. of Copenhagen. It has a 12th-cent. church with 5 octagonal towers. There are chemical and engine works, and the tn has a long-wave wireless station. Pop. 9215.

**Kāma**, or *Kāmadeva*, in Hindu mytho-

logy, the god of love, the son of Brahmā or Dharmā, and the husband of Rati (voluptuousness). He was destroyed by Siva, whom he attempted to seduce, but was afterwards reborn as the child Pradyumna (Cupid).

**Kamakura**, city of Kanagawaken, Japan, 13 m. SW. of Yokohama, on the Bay of Sagami. There are numerous shrines visited by tourists, and a statue of Buddha (Daibutsu) 50 ft high. From 1192 to 1333 K. was the cap. of the first Shogunate gov. of Japan. Pop. 91,000.

**Kamba**, a Bantu tribe of Machakos, Kenya. They are closely related to the neighbouring Kikuyu (q.v.). They lack any form of centralised chieftship, and are ruled by a complex system of elders' councils. See G. Lindblom, *The Akamba in British East Africa*, 1920.

**Kambujiya** (Old Persian; Babylonian *Kambuziysa*), see CAMBYSES.

**Kamohatka**: 1. Peninsula in NE. Asia, between the Sea of Okhotsk, the Pacific, and the Bering Sea. It is largely forested, with sev. functioning volcanoes and varied mineral deposits.

2. Oblast of the Russian Far E., comprising K. Peninsula and the adjacent mainland. There is a large fishing and fish-processing industry. The cap. is Petropavlovsk-Kamchatskiy. It is an area of banishment (since the 18th cent.) and labour camps. Area 218,400 sq. m.; pop. (1956) 209,000, mostly Russians (since 17th cent.), some Koryaks (q.v.) and other small tribes.

**Kamel**, see HAMI.

**Kamenets-Podol'skiy** (formerly also *Kamenets-Podil'sk*, Ukrainian *Kam'yanets' Podil's'kyy*), tn in the Ukraine, 40 m. NE. of Chernovtsy. It is the cultural centre of the Khmel'nitskiy oblast, and has food industries. It has been known since the 12th cent., and has a 14th-cent. fortress and 15th-18th-cent. churches. Pop. (1956) 33,000 (c. 1914, 50,000).

**Kamenev** (real name Rosenfeld), Lev Borisovich (1883-1936), Russian Communist, of Jewish origin. He joined the Social Democratic party in 1901 and was from the start a follower of Lenin. In 1909-14, together with Lenin and Zinov'ev, he directed the Bolshevik organisation from abroad; then he returned to Russia to assume responsibility for the Bolshevik members of the Duma (q.v.) and the newspaper *Pravda* (q.v.). When war broke out K. was banished to Siberia. After the Feb. revolution (q.v.) in 1917 he led the Bolshevik party until Lenin arrived from abroad. He opposed Lenin's policy of seizing power and advocated the estab. of a coalition of all Socialist parties. After the Oct. revolution (q.v.) he became first chairman of the Central Executive Committee of the Soviets (see SOVIETS) and chairman of the Moscow Soviet; later deputy chairman of the Council of People's Commissars (i.e. deputy prime minister). From 1919 to 1925 he was a member of the party's Politburo (q.v.).

After Lenin's death K. allied himself with Stalin against Trotsky; then, together with Zinoviev and later also with Trotsky, he led the Left Opposition (q.v.) against Stalin. In 1926-7 he was ambass. to Italy. He was twice expelled from the party but both times readmitted. Sentenced to 5 years' imprisonment in 1935, he was retried the following year and sentenced to death (see GREAT PURGE).

**Kamenakoye**, see DNEPROZERSHNSK.

**Kamenak-Shakhtinskiy** (formerly **Kamenakaya**), Russian tn on the Severskiy Donets, trib. of the Don, 120 m. N. of Rostov-on-Don, in the Rostov oblast. There are coal-mining and engineering industries. Until the 1930's it was a prosperous Cossack vil.; it has grown considerably since the war. Pop. (1956) 59,000 (1897, 24,000; 1936, 25,000).

**Kamensk-Uralskiy**, Russian tn in the Urals, in the Sverdlovsk oblast, 87 m. SE. of Sverdlovsk. It is a rapidly growing industrial centre (large aluminium plant, pipe foundry). It was founded in 1682 as an iron-smelting works, one of the first in Russia. Pop. (1956) 122,000 (1926, 5000; 1939, 51,000).

**Kamenz**, Ger. tn in the dist. of Dresden, on the Black Elster, 25 m. NE. of Dresden (q.v.). It has textile and glass industries. Lessing (q.v.) was a native. Pop. 15,000.

**Kamerlingh Onnes**, **Heike**, see ONNES.

**Kamerun**, see CAMEROON.

**Kames** vil. of Argyllshire, Scotland, in the Kyles of Bute, 2 m. S. of Tighnabruich. Pop. 500.

**Kamet**, Himalayan peak, 25,443 ft, in Garhwal dist. The first and second ascents were both made in 1931 by a Brit. party and native porters led by F. S. Smythe. See F. S. Smythe, *Kamet Conquered*, 1932.

**Kamienka Góra** (Ger. *Landeshut*), tn of Poland, in Wrocław prov., on the Bobrawa at the foot of the Riesengebirge (q.v.), 40 m. SW. of Wrocław (q.v.). It was formerly in Lower Silesia (q.v.). In 1745 it was the scene of a Prussian victory over the Austrians, and in 1760 of an Austrian victory over the Prussians. It has coal-mines, and there are textile and engineering industries. Pop. 14,000.

**Kaministiquia**, or **Kaministikwia**, tn of W. Ontario on the K. R. (q.v.), 21 m. W. of Fort William, on the Canadian Pacific Railway. There is zinc and silver mining in the dist. Pop. 3000.

**Kaministiquia River** rises in W. Ontario, Canada, SW. of Lake Nipigon, and flows into Thunder Bay, Lake Superior, passing over the Kakabeka Falls (130 ft high).

**Kaminski, Heinrich** (1886-1946), Ger. composer of Polish descent, studied at Hoidelberg and Berlin, and after a short spell of teaching and conducting retired to a Bavarian vil. to devote himself wholly to composition. His work is intensely serious and includes 2 operas, a good deal of choral, orchestral, and chamber music, piano and organ works, and songs.

**Kamloops**, city of Brit. Columbia, Canada, on the Thompson trib. of the Fraser R. Originally estab. as a fur trade

post in 1812, it is the distributing centre of a mining and ranching dist., and a junction on the Canadian Pacific Railway. Pop. 8884.

**Kammer, Lake**, see SALZKAMMERGUT.

**Kampala**, commercial centre of Uganda (q.v.), connected by rail with Mombasa (872 m.), and the main line of the Kenya and Uganda railway extends to K. There is also a railway from K. to Port Bell (7½ m.). K. is a well-planned tn with broad streets lending itself to attractive development. Its pop. comprises about 4250 Europeans, 17,000 Indians, 500 Goans, and 17,000 Africans. The developed area, of which K. is the nucleus, comprises a number of hills, each tending to be appropriated to some special purpose. Within the municipal area are the hill of Nakasero, the gov. residential area with the commercial quarter and gov. offices at its foot; 'Old' K.—the original and true K., and the gov. H.Q. until their transfer in 1905 to Nakasero; and Kilolo Hill, occupied by the wireless and meteorological station. On the summit of Nakasero are the remains of the old gov. fort and a small museum, while its slopes are now largely an Asiatic residential suburb. At Mengo, beyond the township limits, are the kabaka's (native king's) palace, and H.Q. of native gov. Also beyond the township limits are the hill of Namirembe, on which are the Protestant cathedral (All Saints Anglican Church) and the Church Missionary Society's Mengo Hospital; Rubaga Hill, with the Rom. Catholic cathedral and H.Q. of the Mill Hill fathers; and Makerere Hill, on which is Makerere College, the Univ. College of E. Africa. The Brit. flag was hoisted at K. Fort on 1 April 1893, when a provisional Brit. protectorate was proclaimed. It was announced in Jan. 1958 that K. is to become the administrative cap. of Uganda instead of Entebbe.

**Kampen**, old fortified seaport tn, on the R. IJssel, in the prov. of Overijssel, Netherlands, 9 m. NW. of Zwolle. It was one of the Hanseatic tns, and had a thriving trade which declined owing to the silting up of the harbour. Jetties have been constructed, and it is again flourishing. There are 2 Calvinistic colleges at K. The chief manufs. are machinery, blankets, cigars, and bricks. Pop. 25,370.

**Kamperduin**, coastal vil. of the Netherlands in the prov. of N. Holland, off which was fought the battle of Camperdown (q.v.) in 1797.

**Kämpfer, Engelbert** (1651-1716), Ger. doctor and explorer, b. Lemgo, Lippe. He travelled in S. Russia, Persia, Arabia, India, Siam, Java, and Japan, and wrote *Geschichte und Beschreibung des japanischen Reichs*, ed. by C. von Dohm (177-1778).

**Kamtchatka**, see KAMCHATKA.

**Kanakas**, term used by the Polynesians to describe themselves, *kanaka*, or *lanaka*, signifying man. The word is used indiscriminately by white races to describe all S. Sea islanders. The islanders were formerly forced into labour and exported to the Queensland sugar plantations of

**Australia.** The traffic was prohibited in 1906.

**Kanara**, area of India, on the W. coast, roughly between Mangalore and Goa, of which at present the N. part lies in Bombay state and the S. part in Madras state. The language Kanarese is also widely spoken in Mysore state.

**Kanaris**, or **Canaris**, Constantine (1790-1877), Gk. patriot, b. in the is. of Ipsara. In the war of Gk. independence he blew up the Capitan Paasha's flagship with 2000 Turks (1822), repeated his feat at Tenedos in the same year, and did further damage to the Turkish fleet in 1824-5. He helped to depose Otto from the Gk. throne, and after the revolution of 1862 became premier to the new king.

**Kanauj**, anc. city of Uttar Pradesh state, India, 50 m. NNW. of Cawnpore, is on the Kali Nadi R., trib. of the Ganges. It was formerly one of the most important cities of India, and is surrounded by ruins of its decayed greatness.

**Kanawha**, riv. of W. Virginia, U.S.A. Rising in the Blue Ridge, N. Carolina, in its upper course it is called the New It. The direction of its course is generally NW., through ranges of the Alleghenies and along valleys; it has a course of over 450 m., while the area of its basin is 10,800 sq. m. It eventually enters the Ohio at Point Pleasant, Mason co., W. Virginia, and is navigable for about 100 m. from its mouth. It has dams and navigation locks. Its valley, with coal and natural-gas fields and reserves of salt brine, is one of the world's great chemical-manufacturing regions. Charleston, W. Virginia, is its industrial centre.

**Kanazawa**, city of Ishikawaken, on the W. coast of Honshu Is., Japan. Seat of the prefectural gov., it is also the agric., commercial, and educational centre of the Hokuriku dist., and has manufs. of textiles (silk), metal leaf, and steel. Pop. 277,000.

**Kanchipuram**, tn in Madras state, India, 60 m. S. of Madras. K. is one of the oldest tns of India and one of the 7 sacred cities for Hindus. Buddha is said to have made converts here in the 5th cent. bc. No remains exist. There are in fact 2 tns, Great K. and Little K., and the whole area is studded with fine temples. It is of interest that both Vishnu and Siva are worshipped here. There was considerable fighting here in the war between the British and Hyder Ali (1780-1).

**Kandahar**, **Qandahar**, or **Candahar**, cap. of the prov. of K., in SE. Afghanistan. It is situated about 280 m. SW. of Kabul, and at a height of about 3500 ft above sea level. The city, which is well watered, is a place of great importance as a trade centre, amongst its chief products being silk, felt, and fruit. According to tradition it was founded by Alexander the Great, and for about 13 cents. practically nothing is known of its hist. In 1839 it was occupied by the British, and in 1842 Gen. Nott successfully defended it. In 1879 the British again took possession of it, and in 1880, when besieged by Ayub Khan, it was relieved by Maj.-Gen. (later

F.-M. Earl) Sir F. S. Roberts. Pop., with suburbs, 60,000.

**Kandavu**, see KADAVU.

**Kandersteg**, Swiss tourist resort and centre for winter sports, in the Bernese Oberland. K. lies at a height of 3940 ft, at the N. end of the Lötschberg tunnel (q.v.).

**Kandinsky**, Wassily (1866-1944), Russian painter, b. Moscow, studied art in Munich where with Franz Marc and others he founded the celebrated 'Der Blaue Reiter' group of 'expressionists.' He painted in entirely abstract fashion as early as 1910 and evolved a visual language full of emotional suggestion. A teacher at the Bauhaus in 1922, he left Nazi Germany for Paris in 1933, and d. at Neuilly, a naturalised Frenchman. See his *Concerning the Spiritual in Art* (Eng. trans.), 1910; also C. Etienne, *Kandinsky*, 1950.

**Kandy**, tn in Ceylon, 85 m. NNE. of Colombo, was formerly the cap. of the is. It is splendidly situated 1700 ft above sea level, on the shore of an artificial lake.



KANDY: ENTRANCE TO THE TEMPLE OF THE TOOTH

The Buddhist temple, Dalada Malagawa, is visited by pilgrims for the supposed tooth of Buddha it contains, and also its anc. MSS. Near by are the botanical gardens of Peradeniya. Has the ruins of the palace of the old native kings. Their throne, long kept in England by the Brit. royal family, was formally presented to Ceylon in 1934 on the occasion of the Duke of Gloucester's visit.

**Kane**, Elisha Kent (1820-57), Amer. explorer, b. Philadelphia. He took his medical degree in Pennsylvania Univ. and became a surgeon in the navy, visiting India, China, Africa, and Mexico. Twice he went on Arctic expeditions to discover traces of Franklin; he received a gold



medal from the Royal Geographical Society. He pub. *The U.S. Grinnell Expedition in Search of Sir John Franklin*, 1853, and *Arctic Explorations: the Second Grinnell Expedition* (2 vols.), 1856. See W. Elder, *Biography of E. K. Kane*, Philadelphia, 1858; J. Milsky, *Elisha Kent Kane and the Seafaring Frontier*, Boston, 1954.

**Kangaroo**, or *Macropus*, genus of marsupial quadrupeds almost entirely confined to Australia and the neighbouring is., though a few species are found in New Guinea. Modern classification regards the K. family as comprising 21 genera, 2 belonging to New Guinea and 5 being fossil; but *Macropus* remains the chief genus. K.s form one of the most prominent and characteristic features of the fauna of these lands. They vary considerably in size; the great K. attains a length of 8 ft., including the tail, whereas the wallabies (brush-K.s) and rat-K.s, both of the same genus, are comparatively small. They are distinguished primarily by the possession of a pouch (*marsupium*), in which they carry their young at birth and to which the latter go for shelter after they are able to run and jump. They possess 6 teeth in the upper jaw and 2 in the lower, the canines being absent or rudimentary. The head is small compared with the rest of the body, and tapers forward. The shoulders and forelimbs are feebly developed, but the hind limbs are greatly elongated, and by means of these and the powerful tail the K. is able to take long leaps and make swift progress. The forefeet have 5 toes, each furnished with a strong, hooked claw. The hind feet are extremely long and narrow, and possess only 4 toes, the third one, corresponding to the fourth of the human foot, being greatly developed and terminating in an elongated nail, resembling a hoof. K.s are formidable consumers of pasture, and browse on grass and various kinds of herbage, and are hunted by colonists as much on account of the damage they do in eating grass required for cattle and sheep as for sport. They are by nature timid and inoffensive, except when brought to bay, when they will defend themselves with their sharp claws and powerful hind legs. The fur is soft and woolly and lighter in tint below than above, the skin being of value for both shoe and glove leather. The flesh is said to be nutritious and savoury, resembling mutton, the tail especially being considered a delicacy. In the Zoological Gardens of London the K.s and wallabies breed freely.

**Kangaroo Island**, in St Vincent Gulf, S. Australia, is cut off from Yorke's Peninsula by Investigator Strait. It was discovered by Capt. Flinders in 1802. It has salt deposits. Area 1710 sq. m.; pop. 1200.

**Kangaroo-rat**, see **POUCHED MOUSE**.

**Kangavar**, or **Kengavar**, dist. and tn of Persia between Hamadan and Kermanshah. At K. are the ruins of a temple thought to have been built c. 200 BC. Pop. (tn) 6000.

**Kangchenjunga**, Himalayan peak on

the W. Sikkim frontier (28,146 ft.). Its position at the S. of the Himalayan range favours the formation of ice rather than snow. It is a strikingly beautiful mt, but excessively difficult of ascent. Since 1905 sev. unsuccessful attempts have been made, notably those led by Paul Bauer from Germany in 1929 and 1931. His attacks from the E. side rank as the greatest mountaineering performance ever given in the Himalaya. In 1955 the mt was finally climbed by a Brit. expedition led by Charles Evans. They approached from the SW. by way of the Yalung Glacier. The summit was reached by George Band and Joe Brown, using oxygen. See D. W. Freshfield, *Round Kangchenjunga*, 1903; F. S. Smythe, *The Kangchenjunga Adventure*, 1930; P. Bauer, *In Kampf um den Himalaja*, 1931, and *Um den Kantsch*, 1933; G. O. Dyhrenfurth, *To the Third Pole*, 1955; C. Evans, *Kangchenjunga, the Untrodden Peak*, 1956.

**Kangra**, or **Nagarokot**, tn of the E. Punjab state, India, 90 m. ENE. of Amritsar. The famous temple of Devi Vajra was destroyed by the earthquake of 4 April 1905. There is an ant. Rajput fort, sited on a sheer rock above a torrent.

**Kangting** (Tatsienlu), formerly cap. of Sinkiang prov., which is now incorporated into Szechwan (q.v.) prov., China, on the Tachinichuan R. It has been much used as a point of departure by travellers to Tibet, and is a centre for Tibetan trade with China. There is a wireless station.

**Kanjut**, see **HUNZA**.

**Kankakee**, city, co. seat of K. co., Illinois, U.S.A., on the K. R., 50 m. SSW. of Chicago, in a grain-growing, livestock, dairying, limestone area. K. manufs. bricks, furniture, and agric. machinery. It possesses sculpture by George Grey Barnard, and is the site of a state hospital for the insane. Pop. 28,900.

**Kano**, prov. and tn of N. Nigeria, one of the chief centres of the Hausa Muslims. It adjoins Bornu on the E., Bauchi and Zaria to the S., Sokoto on the W., while the international Anglo-Fr. boundary forms its N. limit for more than 200 m. On the whole it presents a uniformly 'park-like' appearance. Over thousands of square miles almost every acre is or has been cultivated, and the hedged or fenced road and fields give an impression of civilisation and ordered industry which is unexampled in tropical Africa. Generally speaking K. prov. consists entirely of flat or gently undulating plains; its rivers—as a rule dry for 7 or 8 months of the year—flow in almost imperceptible valleys in sandy channels. By far the greater part of the prov. drains into Lake Chad. The watershed between the Chad and the Niger systems is a line drawn through the centre of the prov. S. by W. from a point between Katsina and Kazaure. The K. emirate is the most important of the native administrations of Nigeria. The larger tns of K. are usually protected by circular walls of sun-dried bricks plastered over with mud and surrounded by a moat. The wall of K. city is 30 ft high, 20 ft broad at the base, and has a circumference

of 12 m. The introduction of walled towns into Nigeria is traditionally ascribed to the founder of the Hausa states.

The township of K. has grown up outside the walls of the native city, and contains a considerable number of Europeans, as well as non-Europeans. The native administration has installed a water supply and electric light in K. city, a large and well-equipped hospital, a middle and 10 elementary schools, and a survey estab., and is responsible for the construction and maintenance of all communications in its area. K. has railway connection with S. Nigeria. It maintains a large central prison and its own police force, and has an international airport. For sev. months during the year there is a regular bus service from K. to Algeria. Pop. of native city and township 130,000.

According to oral tradition, the earliest inhab. of K. were a race now referred to as Abagayawa. A few families in K., the men of which are generally blacksmiths, still call themselves by this tribal name. Their legend is that one of their ancestors, a smith called K., came from Gulya (near K.) in search of ironstone and settled near Dulla Hill, when the present site of the town was uninhabited. The first ruler of K. was Bagoda, son of Bauwo, grandson of Bayajibba, a legendary hero; Bagoda became *sarki* of B. in AD 999.

Before the advent of Islam the heathen rites in vogue included some form of tree and serpent worship, and the sacrifice of black animals. The advent of the Fulani into K. is nowhere recorded, but they were numerous in the 15th cent. For long the Fulani could not subdue the city of K. itself, its formidable walls and the amount of cultivated land within rendering it impregnable. Eventually a new leader, Suleiman, entered the city unopposed. After Suleiman's death in 1819 the rule devolved on the family of Mallan Jemo, and this has been the ruling family ever since. It was in the latter part of 1902 that news reached K. of the probability that the British would advance and occupy it. No effective resistance was offered and K. city was occupied in 1903.

See W. F. Gowers, *Gazetteer of Kano Province*, 1921; H. C. Hall, *Barrack and Bush in Northern Nigeria*, 1923; C. K. Meek, *The Northern Tribes of Nigeria*, 1925; M. Perham, *Native Administration in Nigeria*, 1937; A. Burns, *History of Nigeria*, 1942; C. R. Niven, *Nigeria*, 1946; Lord Hailey, *An African Survey*, 1957; *Annual Report on Nigeria*.

**Kanpur, or Cawnpore**, city of Uttar Pradesh state, India, situated on the S. bank of the R. Ganges, some 40 m. SW. of Lucknow. K. was the scene of a massacre of Brit. men, women, and children in July 1857 during the Indian Mutiny. It is now one of the greatest industrial cities of India, containing many textile, leather, sugar, and other factories, and is the H.Q. of the Upper India Chamber of Commerce. Pop. 705,383.

**Kansas**, N. central state of U.S.A., bounded on the N. by Nebraska, E. by Missouri S. by Oklahoma, and W. by

Colorado, covers an area of 82,276 sq. m. There are no mts, the surface rising gradually from 750 ft in the E. to nearly 4135 in the W. The Missouri forms its boundary on the NE., and its trib. the K. and the Arkansas and many smaller streams water the state. The E. part of the state is covered by carboniferous formations, the W. by Pliocene deposits, and the remainder by Cretaceous and Tertiary deposits. Bituminous coal, natural gas, lead, zinc, gypsum, limestone, sandstone, and salt are found, and petroleum ranks first in the mineral resources of K., output in 1951 being 115,218,000 barrels. Portland cement is produced. The surface is undulating prairie covered with rich loam of the highest agric. value, requiring, as yet, no artificial fertilising. The rainfall is sufficient, except in the W., and comes at the best period, i.e. early summer. The chief crops are wheat (K. normally produces one-fifth of the hard winter wheat in the U.S.A.), Indian corn, oats, barley, rye, hay, fruit, potatoes, broomcorn, oilseeds, and grain sorghums. The state is not naturally well wooded; the trees are usually small and found in riv. bottoms; red cedar is the only native evergreen. The luxuriant growth of wild sunflowers has given K. the name of the Sunflower State. In areas where crops do not thrive are excellent grasslands on which horses, cattle, sheep, and pigs are reared. Agriculture and cattle-raising employ most of the people, and many of the manufacturing industries are connected with them, as slaughtering, beef and pork packing, flour-mills, and the manu. of agric. implements. K. is one of the 4 greatest cattle-producing states in the union, with c. 3,500,000 head. Hogs (c. 1,200,000) are raised in the corn belt. There are also beet-sugar and glass works, and aircraft and metalwork manufs. K. is divided into 105 cos.; the prin. towns are Topeka, cap. (78,791); K. City (129,550); Wichita (168,279); Hutchinson (33,575); Salina (26,176); Pittsburg (19,341). Prin. educational institutions are the univ. of K., at Lawrence and K. City; K. State College of Agriculture and Applied Science, at Manhattan; the Municipal Univ. of Wichita; and Washburn Municipal Univ. of Topeka. There are many navigable rivs., and over 8950 m. of steam and 445 m. of electric railway. The greater part of K. was acquired by the Louisiana Purchase, 1803; it was completed in 1850, when the Mexican ter. was taken over. It suffered much during the Civil war. According to the constitution of 1861, when it was admitted to the union, the legislature consists of a Senate and a House of Representatives elected for 4 and 2 years respectively. Six members of the latter and 2 senators represent the state in Congress. The governor and executive officers are elected for 2 years. Pop. 1,905,299. See W. E. Connelley, *History of Kansas* (5 vols.), 1918; Federal Writers' Project, *Kansas: A Guide to the Sunflower State*, 1939; F. B. Streeter, *The Kaw: the Heart of a Nation*, 1941.

**Kansas City**: 1. City in Missouri, U.S.A.,

on Missouri R. at mouth of Kansas ('Kaw') R., adjoining K. C., Kansas, and 235 m. WNW. of St Louis. It is an outstanding rail, highway, and air transport centre, near oilfields and refineries, coal, lead, and zinc mines, and limestone quarries; it is also the H. Q. of a large live-stock industry, a great seed distribution centre, and has an important hay market. Industries include farm machinery, automobile assembling, refrigerators, metal and lumber and food products, chemicals, medicines, and printing. The ann. Amer. Royal Live-stock Show is held here. It is the H. Q. of the Unity School of Christianity and the seat of the univ. of K. C., the College of St Teresa, Rockhurst College, and K. C. College of Osteopathy and Surgery. Other points of interest: Union Station, Liberty Memorial, 3400 ac. of public parks (among them Swope Park, 1705) and 119 m. of connecting boulevards (among them Paseo Parkway, 8.5 m., and Cliff Drive, 3.5 m.), the K. C. Live-stock Exchange, Federal Reserve Bank, Public Library, Conservatory of Music, K. C. Philharmonic Orchestra, Municipal Auditorium, Art Institute and School of Design, and the Nelson Gallery of Art. K. C. has had a city manager since 1925. Westport, and Westport Landing, on the site of K. C., were important from 1821 at the E. end of the Santa Fe Trail, and Westport Landing was a great outfitting point in the gold rush of 1849. Pop. 456,622.

2. City, cap. of Wyandotte co., Kansas, U.S.A., largely on r. b. of Missouri R. at mouth of Kansas R. It is the second largest city in the state, and is the commercial, industrial, transportation, and cultural centre for a large wheat-growing and stock-raising area on the central plains. Its chief industries are food processing, oil refining, grain storage, the manuf. of structural steel products, cement, soap, aeroplanes and aeroplane parts, fibre boxes, bricks, and tiles. Oil and gas wells and limestone deposits are near by. The state school for the blind, theological seminaries, a conservatory of music, the univ. of Kansas School of Medicine, and an air force base are here. Pop. 129,550.

**Kansas-Nebraska Bill, The**, Act passed by Congress in 1854, regulating the terms of Kansas and Nebraska, allowing local option in slavery, and thus abrogating the Missouri compromise. It helped to start the Civil war, and caused the rise of the Republican party.

**Kansu**, NW. prov. of China, bounded on the N. by Inner Mongolia, S. by Szechwan, E. by Shensi, and W. by Chinghai; merged with Kinghsia prov. in 1953, together they cover an area of 263,828 sq. m. K. is mountainous; on the SW. the great Nanshan Mts form in part the boundary of the prov. with Chinghai. The Hwang-ho is the prin. riv., flowing from W. to NE. Minerals are abundant, especially coal. The valleys are fertile, and good crops of millet, beans, and tobacco are obtained. The climate is very dry. The products are mainly dyes, silk, tobacco, mercury,

wool, and cattle. Lanchow is the cap. The main trade route from Peking to Kashgar passes through the prov. K. had no railway before 1949; at present a whole network is under construction. The K. section of the Lanchow-Sinkiang railway connecting China with the Siberian railway was finished in 1957. Other lines are from Lanchow to Inner Mongolia, Szechwan, Shensi, and Chinghai. China's main oilfields are in Yumen. Tunhwang is the site of an art institute. Pop. 12,928,102 (1954).

**Kant**, Immanuel (1724-1804), one of the most important of modern philosophers, and perhaps the greatest of all metaphysicians, b. of Scottish descent at Königsberg (E. Prussia), then a centre of humane pietism, where his father was a master saddler. K. later in life greatly extolled his parents, both of whom seem to have met the vicissitudes of life with a resignation and gentleness born of their pietistical religion. It was his mother, however, who particularly influenced K.'s mind, notably in educating him to an appreciation of the beauty and glory of nature. K. was educ. at the Collegium Fredericianum, and subsequently at the univ., whither he proceeded in 1740 to study mathematics, theology, and philosophy, the latter chiefly of the Wolffian school, which at that time held sway in Germany. His teacher in philosophy and physics at the univ. was Marten Knutzen, one of the most independent of Wolffians. K. had entered the univ. as a theological student, but he attended very few theological lectures. Towards the end of the 6 years he spent there he was sorely pressed for money, on account of his father's death; and from 1746 to 1755 earned a scanty living as private tutor. In 1755, obtaining his degree of doctor of philosophy, he became *Privatdozent*, i.e. a private lecturer under the control of the univ., and 11 years later he was appointed a sub-librarian, a position carrying a salary of about \$11 per annum. His years as a tutor in distinguished families gave him that insight into the world which otherwise his secluded existence would have denied him. Also during that period he laid the basis of the wealth of thought and knowledge which he revealed on his earliest appearance as a univ. teacher and as a writer.

Prior to returning, in 1755, to Königsberg, his only pub. work was a short essay on physics. His lectures on physical geography and empirical psychology were designed on popular lines, though some were strictly philosophical in form and not intended for so wide a circle. Among his hearers in 1762 was Herder, who enthusiastically describes K.'s powers as a teacher of moral philosophy, in *Briefe zur Beförderung der Humanität*. Characteristic of this, his earlier period, is his independent criticism of his teachers, Wolff and Newton. It was not until 1770 that he succeeded to the coveted professorial chair; and in the new appointment he lectured not only on metaphysics and logic, but also on natural science, geography,

anthropology, physics, and mathematics. Meanwhile he had not been idle in the literary field; his first book, *Thoughts on the True Estimate of Living Forces*, was pub. in 1747, and the *Theory of the Heavens* in 1755. In this last named he criticises Newton's assertion that the present order of the solar system cannot be explained by the mechanical laws of nature, and propounds his celebrated hypothesis that the present system of the heavenly bodies has been evolved out of a gaseous atmosphere, endowed with primary rotation; and, in the firm interconnection of all the elements of the universe, he sees conclusive evidence of the assumption that the whole universe has its ultimate ground in an absolute and all-comprehending being; so that, in this work, he unites his scientific with his religious views, although rejecting the ordinary proofs of the existence of God. *Träume eines Geistessehers (Dreams of a Visionary)*, his first really significant work, appeared in 1766, probably inspired by his reading at that time of Swedenborg. This work has sometimes been regarded as the introduction to his ambitious system of critiques which came later; but perhaps it would be more correct to assign that place to his Lat. treatise, *Disseratio de mundi sensibilibus*, etc., 1770. It was only during his occupation of the chair of philosophy at Königsberg Univ. (1770-97) that he was recognised at all widely as a profound and original thinker. As a lecturer he was successful, in spite of his weak voice, deformity, and slight physique.

His ultimate fame rests on the writings of the later part of this period, of which the *Kritik der reinen Vernunft (Critique of Pure Reason)*, 1781, his best-known work and the basis of all his subsequent writings, came first. As an introduction to this he pub. the *Prolegomena*, 1783; a year or so later an explanatory popular version was issued by one of his students; the *Die Metaphysik der Ethik (Metaphysic of Ethics)*, 1785, and *Metaphysic of Nature*, 1786, appeared, and the critique passed into its second ed. in 1787. Meanwhile Königsberg had become the centre of philosophical activity, and K.'s method had been adopted by nearly all the Ger. univs., not only for philosophy, but also in some instances for combination with Christian ethics. The remaining critiques, *Kritik der praktischen Vernunft (Of Practical Reason)*, 1783, and *Kritik der Urteilskraft (Of Judgment)*, 1790, complete the list of his most important works. In 1792 his teaching was censored by the Prussian Gov. on account of the anti-Lutheran ideas in his rationalistic thesis; *Die Religion innerhalb der Grenzen der blossen Vernunft (On Religion within the Limits of Reason Alone)*, 1792-3, of which the first part had appeared in the *Berlin Journal*, to which he was a regular contributor. Gradually, as time passed, K. showed signs of impaired health and mental vigour, and in 1797 he resigned his chair.

His philosophical development, as it appears in his works and pub. writings up to 1770, may be summarised thus: His first work is an attempt to reconcile

Descartes and Leibnitz in his Lat. habilitation thesis on the Principles of Metaphysical Knowledge, and also an attempt to reconcile Wolff and Crusius; while his *General Natural History and Theory of the Heavens* attempts to reconcile Newton and Leibnitz, or the mechanical and teleological standpoints. K. seems, indeed, to have been attracted to mechanism in nature and, therefore, to Lucretius; but at this period of his intellectual development (1755-63) he was at one and the same time discussing a number of questions in which man's interest had first been awakened in the Middle Ages; producing his *On the False Subtlety of the Syllogistic Figures*, 1762, *Attempt to Introduce the Notion of Negative Quantity into Philosophy*, 1763, *Only Possible Proof of the Existence of God*, 1793, and *On Evidence*, this last named being an essay for the Academy's prize won by Moses Mendelssohn, 1764. Generally speaking, K. at this period was an 'enlightener' of the school of Wolff, and indeed was giving lectures on the compendia of Baumeister, Baumgarten, and Meier, all adherents of Wolff. But already he was beginning to modify his own standpoint and, in his pub. works, anticipating something newer and higher, as may be seen from his *Dreams of a Visionary* and *On the Ground of distinguishing Particular Divisions in Space*, 1768. His altered general attitude appears, however, much more definitely in the work with which he entered on his office as ordinary prof. This, however, being written in Latin by way of academic exemplar, and given only a very limited circulation, received but little attention. This work, *De mundi sensibilibus et intelligibilis forma et principii*, 1770, is the border-line between the 2 periods in K.'s life which are styled by Rosenkranz the 'heuristic' and the 'speculative-systematic,' and shows us K. as he was after Hume had 'waked him out of his dogmatic slumber' (Erdmann).

K.'s philosophy was aimed at the scepticism of the Eng. empiricists (e.g. Hume), and at the eclectic triviality and dogmatic prejudice of the existing Ger. schools. It is customary to divide his work into 3 periods: (1) influenced by Leibnitz and Wolff; (2) a reaction against (1) under the influence of the Eng. empirical philosophers; and (3) his critical period, during which his own philosophy found mature expression. It is necessary to explain before considering the main points of his teaching that by 'pure' he meant that which is isolated from actual experience, and by 'empirical' that which results from actual experience. The chief divs. which he made in his own system were (a) transcendental, and (b) metaphysical; the former he developed more fully, and it has had more influence on subsequent thought—he has been called the re-creator of the transcendentalism of cognition. He divides the mind into (a) Intellect, subdivided into sensibility (passive), and thought (active); (b) Sensation, or Feeling, the lowest cognitive faculty; and (c) Volition. The old rationalism he rejects; for

its psychology he substitutes his examination of the subject; for its cosmology, his examination of the object; and for its theology, his examination of the relation between subject and object. Identifying the conception of God with the more general law of ethical necessity, he places responsibility on the reason as opposed to the emotions. That it should be possible for a man to accept this responsibility, it is necessary that he should be free from the control of the physical laws of natural causality. This spiritual emancipation, the elevation of subject over object, of noumenon over phenomenon, is attained



IMMANUEL KANT

as his critical conclusion that phenomena do not exist in themselves, but only in relation to the mind, with which they are, therefore, conformative. He denied the existence of any law of supreme, absolute, and external truth such as the rationalists had affirmed. He claimed to establish that only by a process of schematisation does an object offer itself as a cognisable unit to the combined divs. of the mind, (a) the sensuous intuitions of time and space, and (b) the pure notions of understanding or 'categories'—the 12 categories being grouped under the 4 'forms' as follows: (1) Quantity (Unity, Multitude, Totality); (2) Quality (Reality, Negation, Limitation); (3) Relation, between substance and accident, cause and effect, action and reaction; and (4) Modality (Possibility, Existence, Necessity). His *Critique of Pure Reason* is an examination of experience and of the laws of practical reason which he ultimately announced as its controlling force; practical reason becomes one with morality, and the supreme cause is a moral cause, i.e. the subordination of the empirical, or sensuous, to the pure, or intellectual. His

final dicta on the relation of noumenon and phenomenon, i.e. experience, are to be found in his *Critique of Judgment*, in which he traces the ultimate value of life to ethical teleology. From his system of critical or transcendental idealism were developed the 'subjective' idealism of Fichte, the 'objective' of Schelling, and the 'absolute' of Hegel; and his works also influenced Jacobi, Schleiermacher, and Schopenhauer.

His 'religion within the limits of mere reason' impelled him to avoid religious subjects in his lectures, and immediately subsequent writings. This marks what is called the 'practical' period of his career. To this last period belong *On Everlasting Peace*, 1795, *Die Metaphysik der Ethik* (*The Metaphysic of Morals*, 1797), which as a general title was prefixed to the *Metaphysical Foundations of the Theory of Right*, 1796, *The Metaphysical Foundations of the Theory of Virtue*, and a number of short essays in the *Berliner Monatschrift*. With a new monarch on the throne the need for restraint had gone, and he pub. *Der Streit der Fakultäten* (*The Conflict of the Faculties*), 1798, and *Anthropology from a Pragmatical Point of View*, 1798.

During his own lifetime the courses of his lectures were printed singly and his minor writings were collected by Tieftrunk and others. But a complete ed. of his works was long in coming. The first was the 10-vol. ed. of G. Hartenstein (Leipzig), 1838-9, and the next, that of K. Rosenkranz and F. W. Schubert in 12 vols. (Leipzig), came in 1838-40 (this latter contains a biography as well as a hist. of the Kantian philosophy by Rosenkranz); and the most exhaustive, issued by the Prussian Academy of Science in 22 vols., 1900-1942.

Eng. trans.: *Critique of Pure Reason* by T. Meiklejohn, 1852, and M. Müller, 1881; *Critical Philosophy*, E. Caird, 1859; *Works* by J. P. Mahaffy, 1872, and J. Stirling, 1881; *Theory of Ethics*, T. K. Abbot, 1873; *Critique of Judgment*, J. H. Bernard, 1892. See K. Fischer, *Immanuel Kant*, 1897; M. Heidegger, *Kant und das Problem der Metaphysik*, 1929; N. Clark, *Introduction to Kant's Philosophy*, 1929; A. D. Lindsay, *Kant*, 1934; G. T. Whitney and C. F. Bowers (ed.), *The Heritage of Kant*, 1940; A. H. Smith, *Kantian Studies*, 1947; J. Bonds, *Kant*, 1949.

**Kantemir, Demetrius**, see **CANTEMIR**.  
**Kao**, uninhabited is. in the Tongan Group. An extinct volcano, K has a perfect cone, the summit being 3380 ft high, the highest point in Tonga (q.v.).

**Kaohsiung**, second largest city and port in Taiwan (q.v.), China, situated on the SW. coast of the is., opened to trade in 1858. During the Jap. occupation a naval base was built, operating against the Philippines and Malaya. It has docks, a shipbuilding industry, steel plants, and cement factories. The port can accommodate ships up to 8000 tons. Pop. 371,400.

**Kaolin**, or China Clay, is a fine, almost

impalpable powder of pure white colour, the product of the decomposition by weathering of the felspar of a granite rock. The name is derived from the Chinese Kao-ling, 'high ridge,' the name of hills in Chianghsi, a centre of the porcelain manuf. in China. When wet it is easily moulded, and it is the essential ingredient in hard-paste porcelain (q.v.). It is found in Cornwall, at Aue (Meissen), at Passau (Vienna, Ludwigsburg), at St Yrieix, Limoges, and elsewhere in France, and in U.S.A. K. is also used for surfacing paper and cotton goods and as a constituent of many paints or powders. Kaolinite is hydrated aluminium silicate.

**Kap Farvel**, S. extremity of Greenland, situated at the E. entrance to Davis Strait. It is seldom visited on account of the dangerous currents.

**Kapellen**, tn in Belgium, 8 m. N. of Antwerp, engaged in agriculture and cattle-breeding, and having brick works and distilleries, Pop. 10,700.

**Kapok** (Malay *kapok*), a fine silky cotton substance arising from the surface of the seed coats of sev. trees, but obtained chiefly from the K.-tree (*Eriodendron anfractuosum*, family Malvaceae of Java) and from the silk-cotton tree, or *Sumahuma*



KAPOK  
A, ripe seed opening.

(*Cetba pentandra*, var. *indica*, family Bombacaceae, with 19 genera). Other trees of the Bombax family, which has about 30 species (*B. manguba* of Brazil, *B. malabaricum* of India, *B. mexicanum* of Mexico), as well as *Ochroma layopus*, yield an inferior K. The fluff-like substance is produced in great quantities and, being impervious to water, the material is useful for stuffing life-saving apparatus. It is also used to stuff mattresses and cushions. From the seeds is expressed K. oil, used for soap-making and as an edible oil. K. was first introduced into Europe in 1851 and is also obtained from tropical Africa. A yellowish-brown kind, of a brilliant and silky texture, comes from Indo-China.

**Kaposvár**, tn of SW. Hungary, cap. of Somogy co., on the Kapos, 95 m. SW. of

Budapest (q.v.). It is built on hills, has a fine 18th-cent. church, and has textile, engineering, and foodstuff industries. It was under insurgent control during the anti-Russian risings of Oct.-Nov. 1956. There is an airfield. Pop. 33,000.

**Kapp**, Gilbert (1852-1922), Austrian electrical engineer, b. Maur near Vienna; son of a native of Trieste and his Scottish wife. Studied at Zürich. Came to England, 1875. Travelled, returned to England in 1882. Made improvements in electrical measuring instruments and in dynamos. In 1885 began dynamo-making on his own account, but his dynamo has now been superseded by a more modern type. London editor of *Industries*, 1886-1889. In Germany, about 1894-1904, secretary to Ger. Association of Electrical Engineers. Returned to become prof. of electrical engineering at Birmingham Univ. till 1918. He was awarded the Telford medal. Wrote *Electric Transmission of Energy*, 1891, *Dynamos, Alternators, and Transformers*, 1893, and *Principles of Electric Engineering*, 1916.

**Kappel**, vil. of Switzerland, in the canton of Zürich, 4½ m. N. of Zug. At K. the reformer Zwingli (q.v.) met with his death in the conflict of 1531, and a monument was erected to his memory in 1838. There is an old Cistercian convent of 1185.

**Kapunda**, tn in co. Light, S. Australia, 48 m. NNE. of Adelaide. It is the centre of a thriving wheat- and wool-producing area, other products being dairy produce, olives, canary seed, mustard seed, oats, and barley. Average rainfall 19½ in. Its manufs. include weighbridges up to 100 tons capacity, hydraulic hoists, and garage equipment; it has flour and chalk mills. K. is served by rail express passenger service on the R. Murray route. There are bituminous roads from Adelaide through K. to N. tns. Features are the fortnightly sheep and cattle market, and ann. horse sales which attract buyers from all over the Commonwealth and the Middle E. Pop., in tn and dist., 3000.

**Kapurthala**, former Sikh state, now merged in the Patiala and E. Punjab States Union (P.E.P.S.U.), India. The ruler was also one of the prin. Talukdars of Oudh.

**Kara-Kalpaks** (Black Caps), Turkic people who inhabit the S. and E. coast of the Aral Sea, thus forming a geographical transition between the N. Kirghiz and S. Turkomans. Emigrants have settled in Astrakhan, Kuban, and Siberia. Their chief occupation is agriculture and horse-breeding. The land they inhabit is now known as Kara-Kalpakia, and is an autonomous rep. of Soviet Central Asia, included in the Uzbek S.S.R. Nukus is the cap. Pop. 435,000.

**Kara-Kul**, 2 lakes, distinguished as 'Great' and 'Little,' in Soviet Central Asia, in the Gorno-Badakhshan autonomous region of the Tajik S.S.R. The former has an area of 140 sq. m., and lies at an altitude of 13,200 ft.; the latter lies NW. of the Mustagh-ata peak, at an altitude of 12,700 ft.

**Kara-Kum**, desert area composing 90

per cent of the Turkmen S.S.R. of the Soviet Union. Efforts are being made to develop it for the growing of fodder. The K.-K. canal, designed to join the Murgab and Tedzhen R.s with the Amu Darya, is under construction.

**Kara Sea**, part of the Arctic Ocean off the shores of W. Siberia between Novaya Zemlya and Severnaya Zemlya. The chief rivs. flowing into it are the Ob' and the Yenisey, both forming long estuaries. The N. Sea Route goes through the K. S. The chief port is Dikson.

**Kara-Su**, see STRUMA.

**Karachay**, Turkic-speaking people who lived until 1943 on the N. slopes of the main Caucasian range, W. of El'brus, on the upper Kuban' R., and numbered (1939) 76,000. Known since the 16th cent., they were under the suzerainty of the Kabarda (q.v.), and from 1733 that of Turkey; they were conquered by the Russians in 1828. The K. were included in the Mt. People's Rep. (q.v.), in the K.-Circassian Autonomous Oblast in 1922, and the K. Autonomous Oblast in 1926, in which the K. made up four-fifths of the pop. In 1943 the K. were deported to Asiatic Russia for alleged collaboration with the Germans, and K. Autonomous Oblast was abolished and dismembered. Rehabilitated 1957. See W. Kolarz, *Russia and her Colonies*, 1952.

**Karachi**, cap. of Pakistan, situated in W. Pakistan, and now administered as a separate Federal Cap. Area 812 sq. m.; pop. (approx.) 1,500,000. Formerly the cap. of Sind Prov., K. has no anct hist. and owes its rapid development to its great advantages as a port and harbour on the W. coast of the subcontinent. Already a crowded city, K. suffered on partition from the influx of all the apparatus of a central gov. and a large concourse of Muslim refugees from India. In spite of strenuous efforts the ensuing congestion has not been wholly relieved, and the strain upon public services, especially lighting, has been severe.

Before partition the port was a very busy one, constantly used by many shipping lines serving India and the Far E. The tonnage handled annually is steadily increasing, and big plans are in hand for extending air facilities. A loan of nearly \$15,000,000 has been sanctioned by the World Bank to assist them. K. airport at Drigh Road is an international airport of great importance. The main public buildings, which are modern, include the Legislative Assembly, the Secretariat, the Governor-General's (now President's) residence, and the Law Courts. Up-to-date hotels have also been built. The pop. of the city proper is slightly over 1,000,000.

**Karadagh**, see MONTENEGRO.

**Karaganda**: 1. Largest oblast (prov.) of the Kazakh S.S.R. of the Soviet Union, and the main mining and metallurgical section of the rep. Pop. 460,000.

2. Cap. of K. oblast, centre of the coal industry. The pop. has grown from 150 in 1926 to 380,000 in 1955.

**Karakoram**, mt range in central Asia, separating Sinkiang and India, and

forming a continuation of the Himalaya (q.v.) to the Hindu-Kush. It extends 300 m. NW. as far as the Pamir (q.v.). This range contains some of the highest mts in the world, among them being K2 (28,250 ft). Thirty-three peaks rise above 24,000 ft. It is crossed by sev. passes, such as the K. (over 18,000 ft high), the Mustagh, and the Hispar. Extending to the W. there are numerous glaciers and ice-fields, one of the largest being the Baltoro. Gilgit, the remote spot in the high K. mts to the N. of Kashmir, formerly reached after only 12 days' trekking from Peshawar or Srinagar, has now been linked with the outside world by air. In addition Pakistani military engineers have widened the existing 350-m. caravan route from Peshawar to Gilgit via Chilas state over Babusar Pass (13,700 ft high) so that jeeps can traverse the whole distance within 4 days. Gilgit remains the centre of an age-old caravan traffic from Sinkiang or Chinese Turkestan. See W. M. Conway, *Climbing and Exploration in the Karakoram-Himalayas*, 1894; Filippo de Filippi, *Karakoram and Western Himalaya*, 1912; E. E. Shipton, *Blank on the Map*, 1938; Charles Houston, *K2—The Savage Mountain*, 1955.

**Karakorum**, name of 2 old Mongolian caps.: 1. The Uighur cap., the ruins of which remain on the l. b. of the Orkhon, a trib. of the Selenga R., in the Talai-Khaindala steppe. It flourished between the 7th and 9th cents., and was deserted on the fall of the Uighur kingdom.

2. The Mongolian cap., about 25 m. SE. of the above. It was founded by Genghis Khan, and its walls were built in 1234-5. The city was visited by Marco Polo in 1275, and was subsequently destroyed by Kublai Khan, the fourth king of the Mongolian dynasty, for rebelling against his authority. See *Works of the Orkhon Expedition*, 1892; F. and W. Workman, *Ice-bound Heights of the Mustagh*, 1908, and *Two Summers in the Ice-wilds of East Karakorum*, 1917.

**Karamania**, obsolete name for a region comprising most of the E. portion of the central tableland of Asia Minor, lying mostly within the prov. of Konya (q.v.).

**Karamojong**, Nilo-Hamitic cattle-keeping people of E. Uganda; the name is also given to the dist. of Karamoja. They are the most primitive people of Uganda, their country being poor, and they lack the economic and political advancement of other peoples of the protectorate.

**Karamzin**, Nikolay Mikhailovich (1766-1826), Russian historian, writer, and statesman, author of *The History of the Russian State* (12 vols.). A conservative in politics, K. was the leader of the new Sentimental school in literature, and played an important role in the formation of the modern Russian literary language.

**Karatepe**, anct city of the Hittites (q.v.) in Asia Minor, which appears to have flourished for sev. cents. from c. 1900 BC. In 1948 an expedition under the auspices of the Turkish Historical Society excavated a site there on 4 successive levels. The prin. discoveries include 1200

inscribed clay tablets, which have shed light on the hist. of the early Hittite Empire, some graves, and a number of fine pottery vessels some of which suggest the use of glaze.

**Karavelev**, Lyuben (1837-79), Bulgarian author and patriot. In 1857 he went to Moscow where he attended the univ. and wrote for Russian journals. He fell under the influence of the Socialists of the sixties. Finally he had to leave Russia, and he went (1867) to Belgrade and Novi Sad. He wrote sev. stories, full of social criticism, in Serbian. In 1869 he went to Bucharest where he became a member of the liberation movement and devoted himself to anti-Turkish clandestine journalism. After a disagreement with Botev (q.v.) on the nature of the revolution intended, he retired from politics. He just lived to set up his press within the newly freed Bulgaria. He is the father of the Bulgarian short story, and his sketches of vil. types strongly influenced the future course of Bulgarian fiction.

**Kardiseed Oil**, see SAFFLOWER OIL.

**Karelia**, autonomous rep. in NW. Russia, adjacent to the Finnish border. It is a forested, hilly plain with many lakes and a comparatively mild climate. There are large deposits of granite, marble, and other building stones, and mica. Area 68,900 sq. m.; pop. (1956) 615,000, Russians (since 1918 cent.) and Karelians (see FINNS). The pop. are mostly Orthodox Christians, but include also many nonconformist sects. There are timber, wood-processing, and quarrying industries, also dairy farming and fishing. The cap. is Petrozavodsk. From the 12th cent. K. belonged to the Novgorod (q.v.) Rep.; SW. K. was contested by Swedes and Russians till the 18th cent., and by Finns and Russians in the 20th cent. (see VYBORG). The Karelian Labour Com. was formed in 1920, and renamed K. Autonomous Rep. in 1923, and Karelo-Finnish Union Rep. in 1940-56. See W. Kolarz, *Russia and her Colonies*, 1952.

**Karenni** (now called the *Kayah State*), constituent state of the Union of Burma (q.v.), situated between lats. 18° 50' and 19° 55' N., and longs. 97° 10' and 97° 50' E. The surface is principally high tableland of 3000 to 4000 ft. K. contains the famous Mawchi mines. Area 4519 sq. m.; pop. 70,000.

**Karens**, native race of Thailand and Burma, dwelling among the hilly dists. They number about 727,000, and are supposed to have descended from certain Chinese tribes. Many of them have been Christianised. In 1947 they were represented in the Burmese Constituent Assembly by 6 members, but in 1948 began to manifest a wish to break away from Burma, and rebelled.

**Karg-Elert**, Sigfried (1877-1933), Ger. composer, studied at the Leipzig Conservatory, where he joined the teaching staff in 1919. Although he wrote a number of other works, he is known exclusively as a composer for the organ, the harmonium, and the *Kunstharmonium*, and his vast output has been welcomed by

many organists as a modern acquisition to their scanty concert repertory.

**Kariba Gorge** (*Kariba Hydro-Electric Scheme*), site of one of the world's greatest hydro-electric schemes, situated on the Zambesi R., S. Rhodesia. The catchment area will be approximately 200,000 sq. m. and the installation of hydro-electric generating plant will operate under a head of about 280 ft. Initial capital cost exceeds £79,500,000. The power generated will be conveyed to consuming centres by overhead transmission lines joining K. G. with existing networks in N. and S. Rhodesia. It will be available to the copperbelt and to industrial and domestic consumers in S. Rhodesia. Estimated cost of power at receiving stations is 0.4d. per unit, when in full operation falling to 0.3d. per unit. The final cost will exceed £115,000,000. Funds for the scheme have been obtained from the following sources: World Bank loan, £28,600,000; copper-mining companies, £20,000,000; Brit. S. Africa Co., £4,000,000; Standard Bank of S. Africa, £2,000,000; Barclays Bank (Dominion, Colonial, and Overseas), £2,000,000; Federal Gov. of Rhodesia and Nyasaland, £6,000,000. The Commonwealth Development Corporation have agreed to put up £15,000,000 and the Commonwealth Development Finance Co. £3,000,000. A large proportion of the contracts in terms of money to be spent has been awarded to lt. companies who were able to underquote other tenders. When the scheme is completed it is estimated that by 1961 there will be a saving in the carriage of coal of 950,000 tons, and by 1971 of over 3,500,000 tons, which would require 5000 wagons and 82 locomotives to move it. The saving based on 1956 costing will be £10,000,000 per annum to industrial and domestic users. The storage basin will cover a surface area of over 1,000,000 ac. and the lake, the largest man-made lake in the world, will have a shore line of 800 m. The capacity will exceed that of the Boulder Dam by 3 times. The lake itself will be 200 m. long.

**Karikal**, former Fr. ter. on the E. coast of India, 150 m. S. of Madras. Now incorporated by agreement in the Rep. of India.

**Karimata Islands**, group of more than 60 is. situated W. of Borneo. They are separated from the is. of Biliton by the strait of the same name. The largest one of this group, Grand K., is woody and mountainous. Pop. 500.

**Karl August**, Archduke (of Saxe-Weimar), see CHARLES AUGUSTUS.

**Karl Eitel**, Prince, see CHARLES I (of Rumania).

**Karl Franz Josef**, Emperor of Austria-Hungary, see CHARLES I.

**Karl-Marx-Stadt** (*Chemnitz*): 1. Dist. (*Besirk*) of the Ger. Democratic Rep. (E. Germany), bounded on the N. by Leipzig, on the E. by Dresden, on the S. by the Erzgebirge and Czechoslovakia, and on the W. by Bavaria and Gera (qq.v.). It was formerly part of Saxony (q.v.). Area 2320 sq. m.; pop. 2,269,000.



2. Ger. city, cap. of the dist. of K.-M.-S., at the foot of the Erzgebirge on the Chemnitz R., 120 m. S. by W. of Berlin. It stands on the site of a Wendish settlement, and had a linen-weaving monopoly in the early Middle Ages. It was the scene of a Swedish victory in the Thirty Years War (q.v.). During the Second World War it was very badly damaged. In the neighbourhood there are coal and lignite mines, and there are important textile and engineering industries. Pop. 290,000.

**Karlfeldt, Erik Axel** (1864-1931), Swedish poet, b. Dalarne, a prov. possessing a traditional peasant culture. His first vol. of poems, *Vildmarks och karleksvisor*, 1875, did not create a great stir at the time, but he later came to be regarded as the leading Swedish poet after the death of Fröding. He developed an individual, often purposely archaic, style, and his poetry with its feeling for nature reflects the peasant life of his native prov. His best-known collections of lyrics are *Fridolins visor*, 1896, *Fridolins lustgård*, 1901, and *Hösthorn*, 1927. In 1904 he was elected a member of the Swedish Academy, of which he was the permanent secretary from 1912. He refused the Nobel prize for literature during his lifetime, but it was awarded posthumously in 1931. A selection of his poems trans. into English was pub. in the U.S.A. in 1938 with the title *Arcadia Borealis*. See T. Fogelqvist, *E. A. Karlfeldt*, 1931, and J. Kulling, *Karlfeldts livsproblem*, 1943.

**Karli**, cave temple in Bombay state, India, is 34 m. NW. of Poona. It is the largest known Chaitya cave in India, and bears an inscription dating probably from the 1st or 2nd cent. BC.

**Karlings**, see KARLVINGIANS.

**Karlovitx**, see SREMSKI KARLOVCI.

**Karlovy Vary**: 1. Region (*kraj*) in W. Czechoslovakia, bordering on Germany, part of the former prov. of Bohemia (q.v.). It contains the S. half of the Erzgebirge (q.v.), and is watered by the Ohře (q.v.). Area 1767 sq. m.; pop. 300,000.

2. (formerly, Ger. Kaiser Karlsbad; then Karlsbad, or Karlsbad) Czechoslovak tn, cap. of the region of K., on the Ohře. It lies in a narrow valley, 1000 ft above sea level, and is a celebrated spa with hot sodium sulphate springs; the Sprudel spring has a temp. of 165° F. Knollin is found in the neighbourhood and pottery is manuf. Pop. 31,000.

**Karlsbad**, see KARLOVY VARY.

**Karlsburg**, see ALBA IULIA.

**Karlshamn**, seaport of Sweden, on the S. Coast, in the prov. of Blekinge. Pop. 11,270.

**Karlskoga**, tn in the prov. of Värmland, Sweden, long a centre for iron working. The Bofors munition works at Karlskoga are famous all over the world. Pop. 43,049.

**Karlskrona**, fortified seaport tn and chief naval station of Sweden, on the is. of Trossö and 4 smaller ones in the Baltic, is the cap. of the gov. of Blekinge. It was named after its founder, Charles XI. The is. are connected with each other and the mainland by 14 bridges. The harbour,

which can accommodate the largest ships, has arsenals, shipyards, and docks blasted from granite rocks, and is defended by strong fortifications. The chief trade is in matches, tobacco, and cloth. Pop. 33,552.

**Karlsruhe**, Ger. city in the Land of Baden-Württemberg (q.v.), 4 m. from the r. b. of the Rhine (q.v.), 38 m. WNW. of Stuttgart. It lies just N. of the Black Forest (q.v.). The city owes its foundation to the building of a castle on the site in 1715 by the Margrave Karl-Wilhelm of Baden-Durlach; around this castle the city was built in the shape of a fan. Newer additions to the original city have been constructed to a less regular pattern, but K. remains a tn of imposing design, with fine parks and avenues and many notable neo-classic buildings. The former ducal palace is now used as a law court. There are museums, a botanical garden, and academies of arts. Heinrich Hertz (q.v.) conducted his most important experiments in the K. technical college, and it was at K. that Benz (q.v.) built his motor-tricycle in 1885. The city is an important rail centre and has a busy riv. harbour. Its industries include brewing, and the manuf. of machinery, bicycles, cosmetics, and food-stuffs. During the Second World War K. was heavily bombed because of its position as a centre of communications; in particular, there was serious damage in a raid by heavy bombers on 27 May 1944. The city was taken by Fr. troops on 4 April 1945, by which time many dists. were in ruins. Since the end of the war there has been much reconstructed. Pop. 220,100. See DURLACH.

**Karlstad**, cap. of the co. of Värmland, Sweden. It stands at the N. end of Lake Vänern, on the is. of Thingvalla, and is connected with the mainland by bridges. It manufs. machinery, matches, and tobacco. It is an episcopal see. Pop. 38,694.

**Karma**, or **Karman**, Sanskrit noun denoting a deed or action. As applied to the action of a living human being, it is the doctrine that every action, good or evil, receives its reward or punishment. Hence it is concerned with the theory of transmigration, apparently unmerited reward or punishment having been caused by the K. of a previous life. The doctrine is found in the Buddhist and Jain religions. See also TRANSMIGRATION.

**Karmathians**, **Carmathians**, or **Qarmathians** were a Muslim sect, perhaps named after Hamdan Qarmat, who started a movement in lower Mesopotamia which drew its adherents from the discontented lower classes. He formed a fortified camp as a place of refuge and levied dues on his followers, who were required to give up private property for the common good. A branch of the sect under other leaders ravaged N. Syria and Mesopotamia, but this branch was destroyed by 906. A similar social movement had begun in Khorasan in 873, but the hope of converting the Sāmānid ruler was disappointed and the movement died away. In 899 a branch of the K. founded a state

in al-Hasa in E. Arabia from which they terrorised lower Mesopotamia, threatened Bagdad, captured pilgrim caravans, and carried off the Black Stone from Mecca; later they returned it. In all these doings the K. claimed to obey a higher authority. Their connection with the Ismailis is obscure; it may be that when the Ismailis were firmly estab. as lords of Egypt they were embarrassed by their less reputable associates. In al-Hasa the ruler was only first among his peers, indeed one account says that only in war was the command in the hands of one man. This form of gov. outlasted the end of the military power of the state, 1030, and survived into the 18th cent. The gov. was paternal: If a resident fell on evil days, he was given money with which to trade or in some other way repair his fortunes, and an artisan from outside was helped to buy tools and so to earn his living. The basis was a system of communism into which initiation was necessary; this was advanced by vigorous propaganda among the masses, peasants, and artisans. Their doctrines were very like those of the Ismailis (q.v.). See de Goeje, *Mémoire sur les Carmathes du Bahrein*, 1880.

**Karnak**, or **Carnac**, vil. of Upper Egypt, in the prov. of Kench, built on the ruins of the anct city of Thebes. See further under EGYPT, *Exploration and History*.

**Karnal**, tn of E. Punjab state, India, 50 m. SE. of Ambala, is of anct origin. It is on the old bank of the Jumna, which has changed its course and is now 7 m. away. K. was the scene of a severe defeat inflicted upon the Moghul emperor by the Persian Nahir Shah in 1739.

**Kärnten**, see KANTHIA.

**Karolsfeld**, or **Carolsfeld**, **Sohnorr von**, see SCHNORR.

**Károlyi**, **Michael Adam Georg Nikolaus**, Count (1875-1955), Hungarian statesman, b. Budapest. Before the First World War he was a prominent liberal politician, and, during it, opposed the Ger. hegemony. He formed a ministry upon the defeat of the dual monarchy in 1918, and in 1919 was provisional president of the new rep. of Hungary. From 1931 to 1932 he was Prime Minister, but went into exile when Horthy estab. a virtual dictatorship. During the Second World War he led the Free Hungarian movement and returned to Hungary in 1946, but was soon swept aside by the estab. of a Communist regime there, and retired from public life.

**Karor**, see CRORE.

**Karr**, **Jean Baptiste Alphonse** (1808-90), Fr. novelist, critic, and journalist, b. Paris. His first novel was *Sous les tilleuls*, pub. in 1832, of which the originality and charming humour and sentiment brought him fame. In 1839 he became editor of *Le Figaro*, and in the same year he started *Les Guêpes*, a monthly pub. in a keenly satirical tone; in 1848 he founded *Le Journal*. His other works include *Vendredi soir*, 1835; *Le Chemin le plus court*, 1836, a continuation of his autobiography; *Geneviève*, 1838; *Un Voyage autour de mon jardin*, 1845, one of his most popular

works; *Feu Bressier*, 1848; *Font en Thème*, 1853, a book which had some influence in promoting educational reform; and his reminiscences, pub. in 1879-80, under the title of *Livre de bord*.

**Karrer**, **Paul** (1889- ), chemist, b. Moscow, of Swiss parents, and educ. at Zürich Univ., where he was assistant to Alfred Werner, 1911-12. From 1912 to 1918 he collaborated with Paul Ehrlich at Frankfurt-on-Main. Since 1919 he has been director of the chemical institute of Zürich Univ. He has worked on vitamins, carbohydrates, carotenoids, etc., and was awarded the Nobel prize for chem. in 1937.

**Karri**, native name of an Australian tree, *Eucalyptus diversicolor*. It is one of the 'blue gums,' and from it is derived a hard red timber useful in making wood-paving.

**Karroo** (from Hottentot *karusa*, hard), name give to the high plateau in the Cape of Good Hope, S. Africa, lying between the coast mts and the Orange R. basin. The area is divided into the Little K. and the Great K.; the latter is between the Nieuwveld Berge and the Zwarte Berge, and is crossed by the railway. In the dry season the K. is a dry scrub, but after the rains the soil is covered with luxuriant vegetation, which makes rich pasturage for sheep, goats, and cattle. Area 100,000 sq. m. Average altitude 2000-3000 ft.

**Kars**: 1. In Asiatic Turkey, with an area of 7300 sq. m. It is watered by the Aras, Kur, and Arpachai R.s. The surface is mountainous and the climate changeable; cattle-raising is the chief occupation. Salt is found in the S. Pop. 488,406.

2. Tn, cap. of above 11, 115 m. SW. of Tiflis, and connected with it by rail. In the 16th cent. it came into the possession of the Turks, and was fortified by Sultan Amurath III. In 1828 it was taken by Russia and restored to Turkey. Sev. times it was besieged, and finally stormed in 1877. It was ceded to Russia by the Berlin Congress in 1878, but after the First World War became again, with the 11, a possession of Turkey. A treaty between the Soviet Gov. and Turkey was signed here in 1921. K. contains an 11th-cent. cathedral and sev. mosques, and manufs. carpets and coarse textiles. Pop. 20,500.

**Karsavina**, **Tamara** (1885- ), Russian ballerina. A pupil of the Imperial School of Ballet, St Petersburg, she made her début at the Mariinsky Theatre in 1902 and was promoted prima ballerina in 1907. She went to Paris in 1909 with the Diaghilev ballet, creating leading roles in many of the most important ballets staged by that company, notably *Les Sylphides*, *Carnaval*, *Pelouchka*, *Spectre de la rose*, *L'Oiseau de feu*, *Daphnis et Chloé*, *Le Tricorne*. Having married an Englishman and settled in Great Britain, she gave invaluable encouragement during the early years of Eng. ballet, dancing with the Ballet Club in 1930 and being concerned in the formation of the Camargo Society.

She coached Margot Fonteyn when the Sadler's Wells Ballet revived *Spectre de la rose* in 1944, and again when *L'oiseau de feu* was revived in 1954. Her memoirs were pub. under the title of *Theatre Street* in 1930.

**Karat** (Slavonic Kras; It. Carso), name of a region of Yugoslavia, composed of high ridges of limestone which join the E. Alps to the Dinaric Alps, E. of Istria. A series of parallel fractures borders the NE. Adriatic and continues inland; the N. Adriatic is a sunken hollow which has descended along these fractures. The limestone is porous and the water percolates and forms sinks, canyons, and caverns. Similar structure of land will produce the same result, and such a landscape is called a K. landscape; it is characterised by a barren aridity, in addition to the caves above mentioned. Examples may be seen in Derbyshire and parts of Yorks. See C. Diener, *Bau und Bild des Karsts*, 1903, and O. Lehmann, *Die Hydrographie des Karste*, 1932.

**Karun**, only navigable riv. of Persia, rises in the Bakhtiari Mts. and, flowing through Khuzistan, joins the Shatt-ul-Arab at Khorramshahr. Small steamers ascend to Ahvaz.

**Kashan**, dist. and tn of Persia, 120 m. S. of Tehran. It has a trade in carpets. It was once noted for its silk and brocades. Prehistoric remains have been found at Sivalk near K. Pop. of tn 46,000.

**Kashgar**, important tn of Chinese central Asia, in Sinkiang. It is divided into two parts, called Kuhna Shahr, or Old City, and Yangi Shahr, or New City. These are 5 m. distant from each other, and separated by the Kizil-su. Kuhna Shahr is a clay-walled fortress built on an affluent of the Kizil-su after the destruction of the old K. in the early 16th cent. The ruins of the old city Askani Shahr are still extant. K. is popular as a political, religious, and commercial centre; it is a seat of Mohammedan culture, and owns the famous shrine of Hazret Afak. The new city was built in 1838. The surrounding dist. (pop. 300,000) is very fertile and well irrigated. Silk and cotton, boots, shoes, and saddlery form the chief manufs. A new airline links the tn with other major cities in Sinkiang. Pop. 80,000.

**Kashgar, River**, in Sinkiang, China, called in some parts the Kizil-su, rises in the Tien Shan Mts. and flows 500 m. E. to join the Yarkand.

**Kashgaria**, name sometimes given to the dist. generally known as Chinese or E. Turkestan.

**Kashka Darya**, oblast (prov.) of the Uzbek S.S.R., Soviet Central Asia.

**Kashmir** (more properly Jammu and Kashmir), former princely state on the N. frontier of India, bounded on the N. by the Karakoram Mts, on the E. by Tibet, and on the S. and W. by the former Punjab and NW. Frontier Provs. Geographically K. falls into 3 divs., i.e. (1) the remote and mountainous areas Ladakh and Gilgit (q.v.) adjoining Tibet; (2) the valley of the R. Jhelum in which the 'Happy Valley' of K. is set; and (3) the

lower and semi-mountainous area including Jammu, sometimes called the Jammu-K. plain. Areas (2) and (3) are well watered and drained by the Jhelum, Chenab, and Ravi R.s, the Jhelum also draining the great mts to the E. The valley, which is sheltered from the SW. monsoon, has a good climate. The N. region is reached from the valley by passes of 14,000 ft.



THE POSITION OF THE KASHMIR  
CEASE-FIRE LINE

Srinagar (q.v.), the cap. city, is situated in the valley, and it is here and in the Jammu region that the vast majority, said to be eleven-twelfths, of the pop. live. Apart from the normal grain crops, the main products of K. are silk and timber. Sericulture has been practised since the 16th cent. There are no internal railways but road communications link with the Indian railways at Pathanicoat and with Pakistan railways via Abbottabad or at Rawalpindi. Except in Jammu the bulk of the pop. is Muslim. Area 82,250 sq. m.; pop. (1950 estimate) 4,370,000.

It is recorded that Buddhist missionaries reached K. in 245 BC during Asoka's reign in India. Thereafter there were Hindu rulers until the Mogul invasion. Islam was introduced and a Muslim ruler is recorded in AD 1341. Akbar conquered K. in 1588 and it remained under Mogul control until 1739, when it was annexed by the Persian Nadir Shah. The Sikhs conquered the country in 1819, and in 1846, after the first Sikh war, it was assigned by treaty with the British to the Sikh ruler, Rajah Gulab Singh. The ruler of K. thereafter enjoyed Brit. support.

On the partition of India in 1947 it became incumbent upon the Maharaja, Sir Hari Singh, to determine whether to accede to India or to Pakistan—or, in theory, to remain independent. It is apparent that he found it difficult to make a decision, and while he hesitated K. was invaded by unruly tribesmen from the frontier, claiming to be safeguarding the rights of the Muslim majority, but also no doubt stimulated by the prospect of easy loot. The Maharaja, finding his troops

unable to withstand the incursion, promptly announced his accession to India and called for Indian military aid. This was immediately forthcoming. The Pakistan Gov. repudiated the accession as contrary to the wishes of the great Muslim majority in the country, and sent troops to prevent an Indian occupation. The consequent dispute has caused intense bitterness of feeling, which has persisted, between India and Pakistan. Repeated efforts by the U.N., which still continue, have been unable to resolve the deadlock.

In 1951 the Maharaja abdicated in favour of his son, but afterwards the State Assembly of Indian-occupied K. declared the state a rep. Later the same authority announced the integration of K. in the Union of India. The Pakistan Gov. has not recognised any of these actions, and has given its full support to the Azad K. Gov. which functions in the area occupied by Pakistani troops. Meanwhile the truce and the truce-line agreed upon under U.N. advice are being scrupulously observed.

**Kashmir Goat**, variety of the common goat (*Capra hircus*) of the ruminant family Bovidae. It occurs in Tibet, Bokhara, and Kirghiz, but attempts to introduce it into other countries have proved unsuccessful. It is a smallish goat, white, black, or brown in colour, with hanging ears, long horns, and long, straight, fine hair. The wool is used chiefly in the manu. of Cashmere shawls, which are very fine in texture, and have been valued at sev. hundreds of pounds.

**Kashmiri Red Deer**, see RED DEER.  
**Kasimierz**, kings of Poland, see CASIMIR.

**Kasr-el-Kebir**, see ALCAZAR-KERIR.  
**Kassa**, see KOSICE.

**Kassala**, tn of the Sudan, situated on a trib. of the Atbara, about 280 m. S. of Suakim. The railway to Sennar passes through K. Before the Mahdi's rising it held an important commercial position; it was taken by Italy in 1894, and given back to Egypt 3 years later. It is a trade centre for Eritrea; Amer. cotton is successfully grown here. The scene of an It. defeat by Brit. forces in the campaign which ended in the conquest of It. E. Africa in 1941. Pop. about 25,000.

**Kassel**, or Cassel, Ger. tn in the *Land of Hessen* (q.v.), on the Fulda (q.v.), 103 m. NE. by N. of Wiesbaden (q.v.). It was once the cap. of Hesse-K. (q.v.). The Huguenot (q.v.) settlement of Oberneustadt was incorporated with it in 1770. There is a famous art gallery; and at Wilhelmshöhe near by Napoleon III (q.v.) was imprisoned after the battle of Sedan. Rolling-stock, textiles, and optical and precision instruments are manu. Pop. 189,200.

In the Second World War K. was an important objective in the allied plan for crossing the Rhine (q.v.) and establishing a strong force on the far bank. The plan was to launch a main attack N. of the Ruhr (q.v.), supported by a strong secondary thrust from bridgeheads in the Frankfurt area, directly initially on K. to

complete the envelopment of the Ruhr. Following the capture of Marburg the armoured advance on K. was under way by 29 Mar. (1945). The crossing of the Rhine barrier was accomplished at fantastically small cost to the Allies. Gen. Eisenhower's (q.v.) next step was to envelop the Ruhr by converging thrusts from bridgeheads at Frankfurt and Wesel. In the course of the operations the Twenty-first Army Group and the Twelfth Army Group joined forces in the K.-Paderborn area, and the first allied airborne army were prepared to carry out an air drop in the K. area in order to seize the airfields there, and the Eder R. dam; but the rapidity with which the ground forces progressed rendered this airborne operation unnecessary. The encirclement of the Ruhr was completed by 1 April, after which Gen. Omar Bradley (q.v.) was instructed to launch an offensive with the central group of armies from the K. area, towards Leipzig. K. itself was cleared on 4 April, and the main allied advances to the E. began within the following week. Pop. 195,600. See WESTERN FRONT IN SECOND WORLD WAR.

**Kastamonu**: 1. Il of Asiatic Turkey, having on its N. the Black Sea. Area 19,750 sq. m.; pop. 394,000.

2. Tn, cap. of the Il of the same name. It manu. copper ware, there being copper-mines near by. Pop. 13,000.

**Kästner**, Erich (1899- ), Ger. writer, b. Dresden. After contemplating teaching and banking as professions, he finally studied literature; living first by journalism, he was able to turn to writing by the income from his verse (*Herz auf Taille*, 1928; *Lärm im Spiegel*, 1929; *Ein Mann gibt Auskunft*, 1930). His satire is brilliant, and often extremely bitter. Among his novels, *Drei Männer im Schnee*, 1934 (Eng. trans. *Three Men in the Snow*, 1935), later filmed, was a great success. His satirical poems, *Lyrische Hausapotheke*, were pub. in Switzerland during the war, his books being banned in Germany during the Nazi regime. Post-war poems and essays were pub. under the title of *Die kleine Freiheit*, 1953; his play *Die Schule der Diktatoren*, 1956, is a burlesque on dictatorship. K. also wrote charming books for young people, which have become very famous, many of them being filmed and trans. into sov. languages: *Emil und die Detektive*, 1929, *Das fliegende Klassenzimmer*, 1932, and *Das doppelte Lottchen*, 1950.

**Kastoria**, tn of Greece in Macedonia, situated to the S. of Florina on the small lake of K. Formerly of great commercial importance, it still has a flourishing fur trade. Pop. 9,500.

**Kastri**, Argolis and Corinthia, see HERMIONE.

**Kastri**, Phocis, see DELPHI.

**Kastro**, see MYTILINI.

**Katabolism**, name for the processes which result in the breakdown of chemical materials in the living organism, chief example of which is the oxidation of food for energy, as opposed to anabolism, which is the name for the building up of

protoplasm, etc., from less complex substances. The two processes considered together are known as metabolism (q.v.). See also CATALYSIS.

**Katanduanes**, see CATANDUANES.

**Katanga**, prov. of Belgian Congo, SE. part of the colony, having an area of 180,000 sq. m. It is one of the most important mining dists. in the world, with copper, gold, iron, tin, and uranium mines, and supplied 210,000 tons of copper in 1934-5. K. is very fertile, and cattle thrive on its uplands because there is no tsetse fly. Elisabethville is the cap.

**Kater, Henry** (1777-1835), physicist, b. Bristol; he entered the army in 1794, went to India with his regiment in 1799, and was of much assistance in the trigonometrical survey of India. In 1814 he retired on half-pay and devoted himself to scientific pursuits. His first important contribution to science was his proof of the superiority of the Cassegrainian to the Gregorian telescope; he carried on experiments for determining the length of a seconds pendulum, and invented the floating collimator. In 1814 he was decorated with the order of St Anne by Russia for his services in verifying the Russian standards of length, and in the same year was made a F.R.S.

**Kater's Pendulum**, see PENDULUM.

**Katha**, dist. of Upper Burma. Its chief riv. is the Irawadi, and its cap. is Katha. Gold, copper, iron, and lead are found, and rice, tea, sesamum, and tobacco are produced. Area 6994 sq. m.; pop. 290,000.

**Kathakali**, mimed ballet of Malabar, India, notable for the extensive use of *mudras*, or symbolic gestures, which constitute a complete dumb language. Muscular control, supplemented by elaborate facial make up, enables dancers to achieve the most remarkable facial movements and expressions, to which are added the hand movements, making it possible to tell a whole story with relatively few of the other movements involved in dance drama in other countries.

**Katharine the Great**, see CATHERINE II.

**Kathiawar**, peninsula of India, situated on the W. coast between the Gulfs of Cambay and Cutch. It consists of 280 states and estates, which in 1924, with the states of Cutch and Palanpur, were, as the W. Indian State Agency, placed directly under the gov. of India. In 1948, after the achievement of Indian independence, K. joined the first of the new unions—Saurashtra (q.v.). K. is noted for its important religious sites (particularly at Dwarka, Kalitana, Girnar, and Sornath). Area 37,894 sq. m.

**Kathode**, or **Cathode**, see ANODE and ELECTROLYSIS.

**Kations**, or **Cations**, see IONS.

**Katmai**, active volcano of the Alaska peninsula, 7500 ft high; erupted 6 June 1912, creating the Valley of Ten Thousand Smokes.

**Katmandu**, see KHATMANDU.

**Katō, Takaaki**, Viscount (1860-1926), Jap. statesman. He was educ. at the univ. of Tokyo, and in 1888 became private secretary to the minister of foreign

affairs. He was director of the banking bureau and of the taxation bureau, Finance Ministry, 1891-4. From this date till 1899 he was envoy extraordinary and minister plenipotentiary at the court of St James; minister of foreign affairs, 1900-1, and again in 1906; baron, 1911; foreign minister, 1914-15; viscount, 1916. In 1924 he became Prime Minister, and carried through manhood suffrage.

**Katowice**: 1. Prov. (*województwo*) of S. Poland, bordered on the S. by Czechoslovakia. The W. end of the prov. was, until 1945, part of Ger. Upper Silesia (q.v.), to which the whole of the ter. belonged until 1919. It is drained by the Vistula, Warta (qq.v.), and Kłodnica R. Coal, iron, zinc, and other metals are mined, and there is much heavy industry (steel, chemicals, textiles, glass). Area 3807 sq. m. In 1953 the prov. was called Stalinogrod.

2. (Ger. *Kattowitz*) City of Poland, cap. of K. prov., 160 m. SW. by S. of Warsaw (q.v.). It is one of the chief industrial centres of Poland, and has coal, iron, steel, lead, zinc, oil, engineering, chemical, leather, distilling, porcelain, and printing industries. Pop. 200,000.

**Katrine, Loch**, lake of Scotland, situated in Stirlingshire and Perthshire, about 5 m. to the E. of Loch Lomond and 9½ m. W. of Callender. It is about 8 m. long, less than 1 m. wide, and discharges its water through Lochs Achray and Vennachar to R. Teith. It also supplies the city of Glasgow with water. It is situated among some of the most beautiful scenery in Scotland, in the heart of the Trossachs, with Ben Venue and Ben A'an on its bank. See ELLEN'S ISLE.

**Katsura, Tarō**, Prince (1847-1913), Jap. soldier and statesman. Military attaché at the Berlin embassy, 1875-8. He became vice-minister of war in 1884; and served with distinction in the campaign of 1894-5, receiving the title of viscount. After being minister of war, 1898-1901, he was Premier for 4 years. For his services he was raised to the rank of count in 1902, and marquess in 1905, when King Edward VII made him a K.C.M.G. Prince, 1911.

**Kattegat**, see CATTEGAT.

**Kattowitz**, see KATOWICE, 2.

**Kaub**, or **Caub**, Ger. tn in the *Land* of Rhineland-Palatinate, on the r. b. of the Rhine (q.v.), 22 m. WNW. of Mainz (q.v.). On an is. in the riv. at this point there is a 14th-17th-cent. fortress. The tn has a wine trade. Pop. 2500.

**Kaufbeuren**, Ger. tn in the *Land* of Bavaria (q.v.), on the Wertach, 47 m. WSW. of Munich (q.v.). It was once a free city of the empire. It has two fine Gothic churches, and has a glass and jewellery industry. Pop. 24,000.

**Kauffmann, Angelica** (1741-1807), Swiss artist and royal academician, b. Chur, in the Grisons. At the early age of 11 she was painting portraits of its notabilities. She visited Milan, Rome, Bologna, and Venice, and appeared in London in 1766, one of her first works being a portrait of Garrick. She was befriended by Sir

Joshua Reynolds and soon became famous as a painter of classic and mythological pictures and portraits. She is also known by engravings after her works by Bartolozzi and others. *See* lives by Giovanni de Rossi, 1810; F. A. Gerard, 1893; Lady Victoria Manners and G. C. Williamson, 1924.



W. F. Mansell

ANGELICA KAUFFMANN  
Self-portrait.

**Kauffmann, Nicholas**, *see* MERCATOR, NICHOLAS.

**Kaufman, George Simon** (1889- ), Amer. playwright, b. Pittsburgh, Pennsylvania. Educ. at Pittsburgh High School, he went on to study law, but gave it up and worked as a surveyor, a commercial traveller, and a newspaper columnist before becoming a playwright. Most of his plays were written in collaboration with someone else, an exception being *The Buller and Egg Man*, 1925. With Marc Connelly he wrote *To the Ladies*, 1922, *Merton of the Movies*, 1922, and *Beggar on Horseback*, 1925; with Alexander Woolcott he wrote *The Channel Road*, 1929, and *The Dark Tower*, 1933; with Ring Lardner *June Moon*, 1929, a satire on song-writers; and with Moss Hart *You Can't Take It With You*, which won the Pulitzer prize in 1937, and *The Man Who Came to Dinner*, 1939.

**Kaufmann, Constantine Petrovich** (1818-1882), Russian general, b. near Ivangorod. He distinguished himself at Kars in 1855, and was appointed military governor of Turkestan in 1867, occupying Samarkand the following year. In 1873 he commanded the expedition against Khiva, and 2 years later conquered Khokand.

**Kaulbach, Wilhelm von** (1805-74), Ger. painter, b. Arolsen in Waldeck. He was a pupil of Cornelius at the Düsseldorf academy, followed his master to Munich

in 1825, and succeeded him as director of the academy there in 1849, an office which he continued to hold till his death. K. was an exponent of mural or monumental decoration, and also illustrated Shakespeare, Schiller, Goethe's *Faust*, and *Reineke Fuchs*. He showed theatrical imagination in the 'Destruction of Jerusalem' and the 'Battle of the Huns.' His ultimate work was a vast canvas, over 30 ft long, entitled the 'Sea Fight at Salamis,' painted at Munich. *See* lives by H. Müller, 1892, and F. von Ostini, 1906; also J. Durek-Kaullbach, *Erinnerungen an W. von Kaulbach und sein Haus* (3rd ed.), 1922.

His nephew, Friedrich August von K. (1830-1920), b. Munich, was a painter of historical scenes and portraits, and director of the Munich Academy.

**Kaunas** (formerly Russian Kovno), tn in Lithuania, on the Niemen, an economic and cultural centre of the rep. It has engineering, textile, and food industries, and is an important railway junction and a riv. port. There are many architectural monuments of the 14th-18th cents. Pop. (1956) 195,000 (c. 1914, 88,000; 1938, 108,000), before 1939 many of them Jews. K. has been known since the 13th cent., was contested by Lithuania and Teutonic Knights in the 14th cent., and finally became Lithuanian in 1404; it was the centre of a flourishing Lithuanian-Polish trade with Russia and W. Europe in the 15th-17th cents.; it became Russian in 1795, and a prov. cap. in 1842. It was occupied by the Germans in 1915-18 and 1941-4, and was the *de facto* cap. of independent Lithuania, 1918-40. A univ. was estab. in 1922, and abolished in 1951.

**Kaunitz, Wenzel Anton Dominik**, Count, from 1761 Prince of Kaunitz-Rietberg (1711-94), Austrian statesman and diplomat, b. Vienna. From 1741 to 1744 he was minister at Turin, and ambas. at the Fr. court from 1750 to 1753, forming an alliance between France and Austria. From 1753 to 1792 he was state-chancellor and chief minister, and in 1756 formed the coalition against Frederick the Great. *See* life by C. Kuntzel, 1923.

**Kauri**, or Cowrie, Pine, from New Zealand, is produced by *Agathis australis*. Other species of *Agathis* are found widely distributed in SE. Asia. The tree, which is often of great height and girth, produces a very fine softwood timber. In New Zealand only small areas of the originally large K. forests remain, the wood having been very much in demand for many purposes. *See* FORESTRY and TIMBER.

**Kavalla** (modern), *see* CAVALLA.

**Kavalla** (ancient), *see* NEAPOLIS.

**Kaveh**, legendary Persian blacksmith hero, whose sons had been slain to feed the serpents of the tyrant, Zohhak. He raised his leathern apron on a spear as a standard of rebellion and, the revolt succeeding, the apron became the standard of national liberty.

**Kaveri, River**, *see* CAUVERY.

**Kaverin** (real name Zil'berg), Veniamin Aleksandrovich (1902- ), Russian writer

of Jewish origin, has written the stories and novels *Nine Tenths of Fate*, 1926, *The Russian*, 1928, *Artist Unknown*, 1931, *The Fulfillment of Desires*, 1935-6, *Two Captains*, 1940-5, *The Open Book*, 1950, and *Searchings and Hopes*, 1957. He consistently affirms the necessity for freedom of artistic creation.

**Kavieng**, see NEW IRELAND.

**Kavirondo**, dist. and native reserve of Kenya, N.E. of Lake Victoria, with a pop. density of more than 1000 per sq. m. Two distinct races dwell there, Nilotic and Bantu. The dist. is mostly fertile and well watered. The inhab. are an agric. people, but bad husbandry is accentuating the effects of natural erosion. Physically they are a fine people, courageous and good hunters. They practise witchcraft, are polygamous, and tend to ancestor worship. Marriage and other customs depend on whether the parties are of Nilotic or Bantu origin; for instance, premarital intercourse is permitted among the former, but among the Bantu a bride who is not a virgin is returned to her parents, the marriage price refunded, and a penalty paid. See G. Wagner, *The Bantu of the Kavirondo*, 1949.

**Kawartha Lakes**, Ontario, Canada; they extend from Lakefield to Cobocoonk, a distance of 70 m., and include Katchawanookna, Clear, Buckthorn, Chemong, Stoney, Lovesick, Pigeon, Cameron, Sturgeon, and Balsam lakes. The system is connected with the Trent Canal, running from Georgian Bay via the Severn R. to Lake Simcoe and thence to Trenton, a total distance of 240 m. The K. L.—the name means bright waters—are full of romantic charm, and are much favoured by anglers, campers, and holiday-makers.

**Kawaran**, tn in N. Is., New Zealand, Whakatane co., 35 m. N.E. of Rotorua. It is the centre of a newsprint production area and was not on the map until 1952 when it was selected as the site of the Tasman Pulp and Paper Co.'s newsprint plant, which was built in 2 years. Raw material is derived from 275,000 ac. of the Kaiangaroa Forest which was started in 1901 by prison labour. The company will obtain 23 million cu. ft of logs annually for 25 years and natural regeneration will provide abundant material in perpetuity. Pop. 2729.

**Kawlun**, see KOWLOON.

**Kay** (or **Ke**, **Kel**, **Queux**, etc.), Sir, in Arthurian legend, the foster-brother of Arthur, who made him his seneschal. Surnamed 'the Rude' and 'the Boastful,' he is represented as treacherous, malicious, and bitter and sarcastic in speech. He figures in the *Brut*, *Perceval li Gallois*, *Golapros and Gawane* (pamphlet printed in 1508 by Chepman and Myllar), and *Gawayn and Kay* (in the Dutch *Lancelot*). See T. Malory, *Morte d'Arthur*, 1485, and novel by E. P. Frankland, *The Bear of Britain*, 1914.

**Kay, John**, or **Kay of Bury** (fl. 1733-64), inventor, and a reed-maker for looms. In 1733 he took out a patent for his fly-shuttle, by which arrangement only one hand was required to throw the shuttle

backwards and forwards. He also invented the extended lathe and a card-making engine. See G. Guest, *History of the Cotton Manufacture*, 1823, and A. Barlow, *The History and Principles of Weaving by Hand*, 1878.

**Kay, John** (1742-1826), Scottish caricaturist, a member of the Society of Surgeon-Barbers (1771). In 1785 he opened a print-shop in Parliament Close, Edinburgh, and produced miniatures and sketches of local celebrities. These are chiefly of antiquarian interest, as a record of the social life of his times. See collection of his portraits by Paton, 1838, 1842, and 1877.

**Kay-Shuttleworth, Sir James Phillips** (1804-77), politician and educational administrator, b. Rochdale, Lancs. After studying medicine in Edinburgh he returned to Lancs to accept a post as senior physician at the recently created public dispensary. His work among various social classes in this industrial area enabled him to appreciate the problem of the social degradation of townspeople. He grasped the idea that education was the real remedy. Through it self-respect could be created, morals reformed, and knowledge acquired by the working class to guard them against dangerous opinions. Thus, after serving 5 years as an assistant poor-law commissioner during which time he learned the art of public administration, his energies were turned in 1839 to education. As first secretary to the committee of the Privy Council on Education he sought to promote a national system of education and teacher training. Denominational controversy thwarted these plans but he succeeded in creating a system of gov. school inspection, founded, with the help of E. Carlton Tufnell, the first training college for school teachers at Battersea (1839-40), and devised the pupil-teacher system of training elementary school teachers. Before his retirement on account of ill-health in 1849, when he was created a baronet, the role of the central gov. in education had become clear. It was to use parl. grants to stimulate, encourage, and maintain voluntary effort. At first a supporter of the Benthamite doctrine of greater central gov. control of education, he retreated in the face of opposition, leaving the initiative with the religious agencies. In semi-retirement he concerned himself with the treatment of delinquent boys, with the reconstruction of the N. public schools, with the design of an industrial training syllabus, and advised on the setting up of the Girls' Public Day School Trust. He wrote numerous papers on education, and his *Physiology, Pathology, and Treatment of Asphyxia* became a standard text-book. See A. V. Judges, 'James Kay-Shuttleworth, Pioneer of National Education,' in *Pioneers of English Education*, 1954.

**Kayah State**, see KARENTRI.

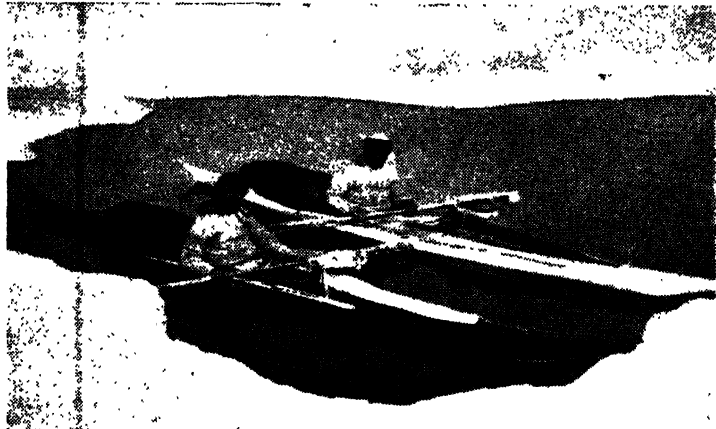
**Kayak**, or **Kajac**, Eskimo term for a fishing-boat, common to all dists. from Greenland to Alaska, strictly only for that used by one man. It is a long, narrow-decked canoe, the light wood framework

being covered with sealakin, and weighs about 60 lb. An *umiak* (q.v.) is a larger type, capable of carrying heavy loads. See CANOE.

**Kaye, Danny** (real name Daniel Kominiski) (1913- ), Amer. actor and comedian, b. Brooklyn, New York. He started on the stage in summer theatres; he toured in the act 'La Vie Parce,' and appeared in night clubs. In 1934 he toured the Orient. He appeared on Broadway in sev. shows, and he entered films in 1943 in *Up In Arms*; other films include *The Secret Life of Walter Mitty*, *Hans Christian Andersen*, *Knock on Wood*, *White Christmas*, and

*Kayseri*, in the fl of the same name in Asiatic Turkey, situated 160 m. SE. of Ankara. Pop. 81,127 (tn); 423,189 (ll).

**Kazakhs**, or **Kazaks**, name of the Turkic people now forming about half the pop. of the Kazakh S.S.R. (see KAZAKHSTAN). Their origin is obscure. The name Kazakh, which is not traceable before the 15th cent., means, according to Barthold, adventurer or revolutionary, and may have been first used to describe some elements who seceded from the Timurid empire. Before the revolution of 1917 the Russians called them Kirgiz or Kalsak-Kirgiz to prevent confusion with



G. Kristensen

*The Court Jester*. He formed his own production company in 1952. He also makes gramophone records.

**Kaye, Dr John**, see CAIUS, DR JOHN.

**Kaye-Smith, Sheila** (1887-1956), novelist, b. St Leonards-on-Sea, daughter of a clergyman. Educ. privately, she commenced writing at a very early age. In 1924 she married T. Penrose Fry, a rector at St Leonards, and in 1929 both were converted to Rom. Catholicism and settled in Sussex. *The Tramping Methodist*, 1908, her first novel, was followed in the next year by *Starbrace*, but her first real success was *Sussex Gorse*, 1916. Others were *Tamarisk Town*, 1919, *Green Apple Harvest*, 1920, *Joanna Godden*, 1921, *The End of the House of Alard*, 1923, *The George and the Crown*, 1925, *Shepherds in Sackcloth*, 1930, *Ember Lane*, 1940, and *The Lardners and the Laurehwoods*, 1948. *Joanna Godden Married*, 1926, is a collection of short stories. She also pub. 3 vols. of verse (*Willow's Forge*, 1914, *Saints in Sussex*, 1923, and *Songs Late and Early*, 1931), and with G. B. Stern wrote 2 studies of Jane Austen, 1943, 1949. *Three Ways Home*, 1937, is an autobiography.

the Cossacks of Russia, the real Kirgiz being called Kara-Kirgiz. During the 17th cent. the K. were loosely organised in 3 hordes or *zhuz* (hundreds). They came into contact with the Russians during the 18th cent. and their ter. was gradually annexed and colonised. Up to the revolution it was administered as the Stepnoy Kray or Steppe Region. The K. were monadic before the revolution, but have now been largely stabilised. They number about 2 million.

**Kazakhstan**, Kazakh Autonomous Socialist Soviet Rep., was created in 1920, to include that part of S. Siberia inhabited by the Kazakhs. K., comprising the govs. of Uralsk, Turgay, Akmolinsk, and Semipalatinsk, was made a union rep. in 1936. To this rep. were also added the parts of the old governorship of Turkestan inhabited mostly by Kazakhs. It consists of the oblasts (provs.) N., S. E., and W. K., Akmolinsk, Aktyubinsk, Alma-Ata, Guryev, Dzhambul, Karaganda, Kzyl-Orda, Kokchetav, Kustanay, Pavlodar, Semipalatinsk, and Taldykurgan. The area of the K. S.S.R. is 1,056,000 sq. m., and the pop. is 8,500,000 according to the 1955 election returns.



Situated far from the oceans, K. has a dry extreme continental climate. There are frequent dust storms, and in summer rainfall is slight. Near the Irtysh and other rvs. the grass vegetation is abundant; to the S. the characteristic brown soil zone supports a sparse steppe vegetation, water being scarce. On the banks of the salt lakes and streams are thickets of rushes, which serve to break the monotony of the landscape. The valleys, however, contain freshwater springs, and these are the spots chosen by the Kazakh herdsmen as their winter quarters. The steppe on each side of the Sary Su, which flows from the Kazakh upland to the Syr-Darya, but is now overgrown, is the habitat of wolves, badgers, and foxes, which are hunted by the Kazakhs. For cents the steppe and dry steppe lands of K. have been the home of nomadic herdsmen, but agriculture is the chief industry, state farms for increasing the grain supply occupying nearly 5,000,000 ac. before the Second World War, but to-day covering at least 10,000,000 ac. Cents ago settled life had developed near the rvs. along the borders of the mts in the SE., and irrigation works were constructed. The new Kyzyl-Orda dam in the Syr-Darya is intended for water conservation for 100,000 ac. of rice plantations and, in time, to increase the irrigated area in the Kyzyl-Orda region to 375,000 ac. Across the country were caravan trade routes from China, India, and Iraq. The tsarist settlers appropriated the more fertile lands, so that the majority of Kazakhs were forced to seek a precarious living as herdsmen. But in the last few decades great changes have taken place: modern farming technique has been adopted, and there are tractors and combine harvesters on the farms. Minerals include coal, iron ore, zinc, lead, oil, silver (undeveloped), and copper, a valuable deposit of which was found in 1928 near Lake Balkhash. The industrial development is in the direction of using the resources of oil, coal, and non-ferrous metals on the one hand, and of using the products of agriculture, especially cotton, on the other. The Karaganda coal basin is the third largest in Russia: copper refining and chemicals are amongst other industries.

This industrial development is reflected in the expansion of the railway communications. Before the First World War there was only one railway for the whole region from Orenburg to Tashkent. When, however, it was decided that the industries of the Asiatic Russian reps. were to be planned in relation to those of W. Siberia and the Urals, it was essential to create new means of transport, and altogether over 4000 m. of new railroad have been constructed. A railway crosses the rep. from NW. to SE., and another in the E. connects with it and the Trans-Siberian line. Thus Novosibirsk is linked with Tashkent and Alma-Ata; Petropavlovsk, by branch line, with Karaganda; and Dzhezkazgan, by another branch line, with Semipalatinsk. The chief tns are Alma-Ata, the cap. (formerly Verny),

which has a univ. (pop. 320,000); Karaganda, a new tn (380,000); Dzhambul (130,000); Leninogorsk (120,000); Petropavlovsk (120,000); Semipalatinsk (120,000); Chimkent (120,000); Akmolinsk (100,000).

**Kazalinsk**, tn in the Russian region of Syr-Darya, in the Kazakh S.S.R., on the Syr-Darya R., which floods the tn in spring. It is situated at the junction of the prin. trade routes of central Asia, and carries on an active trade with the surrounding dist. Pop. 20,000.

**Kazan**, *Elia* (1909- ), Amer. producer and director of plays and films, b. Constantinople; educ. Williams College and Yale Dramatic School. He worked with the Group Theatre and acted on the stage, 1935-41, his plays including *Waiting for Lefty*, *Golden Boy* (in which he made his first London appearance in 1938), and *The Gentle People*. He made his acting debut in films in *Blues in the Night*, 1941. The stage plays he has directed include *The Skin of Our Teeth*, *All My Sons*, *A Streetcar Named Desire*, *Death of a Salesman*, *Camino Real*, *Tea and Sympathy*, and *Cat on a Hot Tin Roof*. He has 4 times won an award for the best stage director of the year. He became a film director in 1944, and won the Academy Award in 1947 for *Gentleman's Agreement*. Other films include *A Tree Grows in Brooklyn*, *Boomerang*, *Panic in the Streets*, *Pinky*, *A Streetcar Named Desire*, *Viva Zapata*, *Man on a Tightrope*, *On the Waterfront* (Academy Award, 1954), *East of Eden*, *A Face in the Crowd*, *Baby Doll*.

**Kazan'**, city on the Volga, cap. and economic centre of the Tatar Autonomous Rep. (q.v.), one of the main centres of Russian and the centre of Tatar culture. It has large engineering (aircraft, agric. and transportation machinery, typewriters, shipyards near by), chemical (explosives, synthetic rubber, soap, photographic films), leather, fur (half the Russian output of furs), and other industries. It is an important transportation centre (riv. port, airport, major railway junction near by). K. has a branch of the U.S.S.R. Academy of Sciences (1945), a univ. (1804), and has had a theatre since the 18th cent. There are many architectural monuments of the 16th-19th cents. K. was founded by Tatars in the mid 13th cent., 30 m. NE. of its present site (transferred late 14th cent.); it was cap. of the independent K. Khanate in 1445, and was conquered and destroyed by Ivan the Terrible in 1552; it became cap. of the Volga region in 1708, was seized and burnt by Pugachev in 1774, and became prov. cap. in 1781. Peter the Great built his Caspian fleet for the Persian campaign here: light and food industries developed during the 18th cent., heavy industry during the 1930's. The first Russian prov. lay secondary school was founded in K. in 1758, and the first prov. newspaper in 1811; the Theological Academy (founded as Slavonic-Lat. Academy in 1723) was abolished after 1917. Since 1917 K. has lost much of its former status as the intellectual cap.

of E. Russia. Pop. (1956) 569,000 (third on the Volga and sixteenth in Russia; 1917, 193,000; 1920, 146,000; 1926, 179,000; 1939, 402,000), Russians and Tatars.

**Kazbek**, mt in the Caucasus, one of the highest in the main range (16,546 ft).

**Kaz-Dagi**, see **IDA**.

**Kazembe**, see **CAZEMBE**.

**Kazinczy, Ferenc** (1758-1831), Hungarian linguistic and literary reformer, b. Er-Semlyén. He started the first Magyar literary magazine in 1788. Imprisoned from 1794 to 1801 for his part in the Martinovics conspiracy. He gradually built up a circle of writers prepared to accept his guidance in form and language and follow the models of Ger. classicism.

**Kea** (*Nesiotis notabilis*), New Zealand species of the Loridae, or Brush-tongued Parrots, the Maori name, K., being indicative of the bird's cry. Formerly lusive on fruit and insect grubs, during a time of scarcity it took to haunting the sheep stations and feeding on the offal of sheep killed for consumption. It soon showed a preference for the fat surrounding the kidneys and is credited with being a bird of prey, attacking living sheep on the runs, and tearing off the wool and flesh of the loins to reach the kidneys.

**Kea**, see **CANG**.

**Kea, Keos**, see **CEOS**.

**Keable, Robert** (1837-1927), novelist, b. Beds, son of a minister. Educ. at Whitgift School and Cambridge, he was ordained in 1911 and went as a missionary to Basutoland. During the First World War he was chaplain with the S. African forces; and as a result of his war experiences, of which he wrote in *Standing By*, 1919, he decided to give up the Church. *Simon Called Peter*, 1921, a novel which told of his loss of faith, was a tremendous success and made him rich and famous; its sequel, *Recompense*, 1925, was less successful. Going to the S. Seas in search of health he wrote *Tahiti: Isle of Dreams*, 1926, and *The Great Galleon*, 1929.

**Keady**, mrtk tu in co. Armagh, N. Ireland, 7 m. SW. of Armagh, with linen carpet manuf. Pop. 1640.

**Kealakekua**, bay in Hawaii, one of the Sandwich Is. (q.v.). It was here that their discoverer, Capt. Cook, was murdered in 1779.

**Kean, Charles John** (1811-68), actor, the second son of Edmund K. (q.v.), appeared at the age of 16 as Young Norval in Home's *Douglas* at Drury Lane. The favourable impression he made secured him an engagement at the Haymarket, where he was successful as Hamlet. Among his other triumphs were Richard III, Sir Giles Overreach, and Louis XI. He married, in 1842, Ellen Tree. He did much to improve stage scenery and *décor*. See life by J. W. Cole, 1859.

**Kean, Edmund** (1789-1833), actor, went on the stage as a child, at the age of 12 playing Prince Arthur in *King John*, with Kemble and Mrs Siddons. In 1814 he won his spurs at Drury Lane with a magnificent performance of Shylock, and the reputation he then acquired was vastly

increased by his Richard III and Hamlet. He had his failures, but in the annals of the Eng. stage he was unrivalled in tragic roles. Owing to drunkenness and personal extravagance he fell on evil times in his last years. There are biographies by Barry Cornwall, 1835, and F. W. Hawkins, 1869.

**Keane, John**, 1st Baron Keane (1781-1844), Eng. general, entered the army at the age of 12. In 1799 he became captain, serving sev. years in the Mediterranean, and also in Spain under Wellington, being made colonel in 1812, major-general in 1814, and general in 1815. From 1823 to 1830 he was commander of the forces in Jamaica. In 1839 he performed his most famous exploit, the capture of Ghazni, for which he was raised to the peerage. He was not so much a great as a fortunate soldier.

**Kearley, Sir Hudson Ewbank**, see **DEVONPORT, 1ST VISCOUNT**.

**Kearny**, manufacturing tn in Hudson co., New Jersey, U.S.A. Bridges spanning the Passaic connect it with Newark. It has shipyards and dry docks (greatly expanded in 1941), and manufs. linoleum, aluminium ware, chemicals, batteries, electrical equipment, paints, brushes, varnish, wallboard, drugs, cosmetics, plastics, tools, and clothing; there is also gold and platinum refining. It includes industrial and residential Arlington. Pop. 40,000.

**Kearsley, or Kersley**, tn of Lancs, England, 3 m. SE. of Bolton, with cotton mills and paper works. Pop. 10,675.

**Kearton, Cherry** (1871-1940), photographer and traveller, b. Thwaite-in-Swaledale, Yorks, younger brother of Richard K. (see below). He was a pioneer of animal photography, and of ciné films of big game, and the first to illustrate books on natural hist. entirely by photographs. He illustrated many books by his brother Richard, and himself wrote numerous books on animals and on his travels, typified by *In the Land of the Lion*, 1930. A collected vol., *Cherry Kearton's Travels*, appeared in 1941.

**Kearton, Richard** (1862-1928), field naturalist and author, b. Thwaite-in-Swaledale, Yorks, son of a yeoman farmer and himself a yeoman farmer. He wrote numerous books on birds, many of them illustrated. Among the best known are *British Birds' Nests*, 1895, *Birds' Nests, Eggs, and Egg-collecting*, 1896, *With Nature and a Camera*, 1897, *Wild Life at Home*, 1899, *Our Rarer British Breeding Birds*, 1900, *Wonders of Wild Nature*, 1915, *Wild Bird Adventures*, 1923, and *A Naturalist's Pilgrimage*, 1926.

**Keaton, Buster** (1896-1957), Amer. actor, b. Pickway, Kansas. He began in vaudeville as a baby with his parents in an act called *The Three Keatons*. His career on the screen started with roles in support of Riscoe Arbuckle (Fatty). K. became a star first in short, then in feature, films. He made many silent features and also appeared in sound films. He was famous for his unsmiling 'deadpan' expression. A film story of his life,

*The Buster Keaton Story*, appeared in 1957.

**Keats, John** (1795–1821), poet, b. London, son of a livery-stable keeper. Educ. at Enfield, he was an orphan at the age of 15. He was intended to be a surgeon, and in 1816 was a dresser at Guy's Hospital, but soon he abandoned any intention of pursuing this profession. He made the acquaintance of Leigh Hunt, and began to publish verse in the latter's paper, *The Examiner*. Shelley, who greatly admired him, assisted him to bring out in 1817 a vol. of *Poems*, which attracted no attention among the general public. Undismayed by failure, K. began to write



N.P.G.

#### JOHN KEATS

The painting by William Hilton, after a miniature by Joseph Severn.

*Endymion*, which appeared in 1818, but did not at once win that chorus of praise with which it has since been rewarded. Indeed K. was bitterly attacked by Lockhart in *Blackwood's*, and Croker in the *Quarterly*, but after the first shock his confidence returned, and he was able to say: 'I think I shall be among the English poets after my death,' than which no self-criticism was ever more true. For K. poetry was the one and only calling, and indeed the clue to his whole artistic career is to be found in his words (written from Carisbrooke on 18 April 1817, before his fatal illness declared itself): 'I find I cannot exist without poetry—without eternal poetry—half the day will not do. . . . It was this devotion of his that helped him to triumph over difficult circumstance and discouragement. His distracting love for Fanny Brawne, whom he first met in 1818, conduced by its intensity to the undermining of his health, which

was already broken. Consumption declared itself in Feb. 1820; he was ordered to a warmer climate, and left for Italy in Sept. 1820, but d. in Rome on 23 Feb. 1821. The traditional view of K. as a moral weakling, who was killed by critical abuse of *Endymion*, is utterly ill-founded. The real K. was no decadent; rather was he courageous and even pugnacious. His letters to Fanny Brawne, with their hectic bursts of passion, may in some measure be held to justify the legendary conception of him; but they were written at a time of great anxiety and fast-ebbing health; and indeed other letters of the same period to his brother in America and to various friends meanwhile give evidence of plenty of grit in his character.

His other works include *Hyperion*, 1818–19, *The Eve of St Agnes*, 1819, *La Belle Dame sans Merci*, 1819, and *Lamia*, 1820. In *Endymion* K. was trying his prentice hand; it is full of crudities both of idea and style. In *Hyperion* he has mastered his instrument, and in its best passages his music and thought ring true and reveal the self-discipline which, in the interim, he had so rapidly acquired. In *Endymion*, there is every trick of egregious fancy and the 'ornamental art of rhyme is employed in its extravagance along with the real and imaginative faculty of the mind'; *Hyperion*, on the other hand, contains some of the greatest poetry in the language. *The Eve of St Mark*, which he left unfinished at his death, is very different, yet is as authentic in mode as *Hyperion*. It revealed the pictorial element which is perhaps most characteristic in all his shorter poems, particularly in *Lamia*, and has been well described as 'pre-Raphaelitism in a nut-shell.' In 1817 K. took up the study of Shakespeare's *Sonnets* and made a study of Shakespeare on the stage; but he was not the type of man to make a more formal and exemplary critic and reviewer, and one is impelled in reading his reviews to speculate rather about his future as a dramatic poet himself had he lived. K. had as much philosophy in him as perhaps even Shelley, but he was too fine an artist to let his philosophy dominate his muse. In a word, the poetry of K. is great in intellect as well as fantasy and his early death was one of the irreparable calamities of literature. His odes are not excelled by those of any other writer, those 'On a Grecian Urn,' 'To a Nightingale,' 'To Autumn,' and 'On Melancholy' being among the classic gems of Eng. literature.

From Dec. 1818 to 1820 K. lived in Wentworth Place, Hampstead. Wentworth Place in K.'s day comprised 2 houses, one shared by K. and Charles Armitage Brown, the other occupied by Charles Wentworth Dilke. Structural alterations were carried out and the building was opened in 1931 by Lord Crewe as K. House, comprising a K. Museum and a branch lending library by way of memorial to the poet.

Collected eds. of K.'s poetical works have been ed. by H. B. Forman, 1883, E. de Selincourt, 1905, Sir S. Colvin, 1915,

J. Middleton Murry, 1930, and H. W. Garrod, 1939 (the definitive ed.). His *Letters* were ed. by R. M. Milnes with life, 1848, Sir S. Colvin, 1891, and M. B. Forman, 1931 (the definitive ed.). See lives by E. Dowden, 1886; Sir S. Colvin, 1887; R. Bridges, 1895; Amy Lowell, 1925; H. W. Garrod, 1926; B. I. Evans, 1934; D. Hewlett (*Adonais*), 1937; B. Askwith, 1941. Also D. L. Baldwin and others, *A Concordance to the Poems of John Keats*, 1917; H. I. A. Fausset, *Keats: a Study in Development*, 1922; J. Middleton Murry, *Keats and Shakespeare*, 1925; M. R. Ridley, *Keats's Craftsmanship: a Study in Poetic Development*, 1934; Lord Gorell, *John Keats, the Principle of Beauty*, 1948.

Kebles, John (1792-1866), Eng. cleric, won double first-class honours, when, in 1811, he graduated from Corpus Christi College, Oxford; fellow and tutor of Oriel from 1811 to 1823; he was prof. of poetry in Oxford from 1831 to 1841; and in 1836 he accepted the country vicarage of Hursley, Hants, where he stayed till his death. In disposition K. was shy and unassuming, and, considering his talents, strangely unambitious. His friends have left generous tributes to his winning personality and his unsparing devotion to his duties. A Tory and cavalier in politics, he was, according to Newman, the 'true and primary author' of the Oxford movement in the Eng. Church. It grew out of his famous sermon on 'National Apostasy', 1833, the High Church sympathies of which reappear in his contributions to the celebrated *Tracts for the Times*, in his standard ed. of Hooker's works, 1836, and in all his sermons and poems. He is popularly known for his book of poems, *The Christian Year*, 1827. See lives by J. C. Shairp, 1866; Sir J. T. Coleridge, 1869; W. Lock, 1892, with bibliography; E. F. L. Wood (Lord Halifax), 1909.

Kebles College, Oxford, founded in 1868 as a memorial to John Kebles, a leader of the Oxford movement and formerly prof. of poetry in the univ. It obtained full status, enjoying equal privileges with other colleges of the univ., in 1952. Its buildings, including the fine chapel, by Wm Butterfield, are of brick and stone in neo-Gothic style.

Keokomet, tn of central Hungary, cap. of the co. of Bács-Kiskun, 65 m. SSE. of Budapest (q.v.). It has a Calvinist school of law, a 17th-cent. Calvinist church, and an 18th-cent. baroque Catholic church. The tn is the centre of a rich dist. of the Alföld (q.v.) and is famous for its fruit. Agric. machinery is manuf., and there is distilling (apricot brandy). Pop. 64,000.

Ked, Sheep, see SHEEP LOUSE.

Kedah, state of the Federation of Malaya prior to the formation of the Malayan Union after the Second World War (which was replaced by the present Federation of Malaya on 1 Feb. 1948), classed as an Unfederated Malay State in treaty relations with Great Britain. It is bordered by the Siamese provs. of Songkhla and Patani, and by Perak (q.v.), and extends along the sea coast from the R. Sanglang,

its boundary with Perlis (q.v.), to the Muda R., its boundary with Prov. Wellesley. The state includes the is. of Langkawi, and a number of adjoining is., of which Pulau Dayang Bunting is the largest. Its area, including is., is 3660 sq. m. The highest peaks of the mainland are Gunung Bintang (6100 ft), K. Peak (or Gunung Jeral) (3980 ft), and Bukit Perak (2823 ft). The S. and central area consists mainly of undulating land broken up by ranges of high hills; this area is principally occupied by large rubber plantations. The N. and coastal belt contains the best rice-growing area in the Federation of Malaya. The E. part along the Patani border is still largely undeveloped; its ranges of hills consist of granite, quartzite, and shales. The cap. of K. is Alor Star. Characteristic of the climate, as elsewhere in the Malay peninsula, are uniform temp., high humidity, and copious rainfall, except that in K. there is a well-defined dry season from mid Dec. to mid Mar. Little is known of the hist. of K. before the 15th cent., though there are references to a country which is identified with K. in the works of Arab voyagers of the 9th cent. AD, and in the Chinese chronicles of the T'ang dynasty. It was, however, always known to abound in tin, and it was also known that its people were Buddhist. At the end of the 15th cent. the ruler of K. was converted to Islam. The Portuguese Barbosa, in a MS. of 1516, described K. as a place in the kingdom of Siam, to which many ships resorted for trade in all sorts of merchandise; but Siamese influence did not save K. from Portuguese attacks in 1611, and in 1619 the Achinese carried its ruler into captivity. There is ample evidence of 17th-cent. Eng. trade with K., by both private merchants, and by the E. India Co.; but later, in 1683, the Dutch, who had obtained a concession in 1641, forced the Eng. company to concentrate on India. In the 18th cent. K. came under the influence of the Bugis, who were then dominant in Selangor (q.v.), and it was to secure assistance against them that the sultan of K., in 1771, approached Francis Light who, in 1786, concluded an agreement 'with the King of Quedah for the cession of Prince of Wales Island.' Penang was occupied by Capt. Light, and the Brit. flag hoisted there on 12 Aug. 1786, but a few years later the agreement was replaced by a treaty (1791) by which the K. Gov. was to receive an ann. payment from the E. India Co. for the lease of the is. In 1821 the Siamese invaded K., and divided it into 4 parts, Perlis, Setul, Kubang Pasu, and K., putting each under a separate ruler. In 1843 the sultan of K., who had lived in retreat in Malacca, was allowed to return to Alor Star and resume the rulership of K. Setul, Perlis, and Kubang Pasu, however, remained under their separate rulers, who were made independent of K. Later Siam allowed Kubang Pasu, which is a thinly populated dist. on the N. border of K., again to become a part of K. Setul is now a part of Siam. Perlis is independent of the sultan

of K. In 1909 under a treaty with Siam the suzerainty of K. was transferred from Siam to Great Britain. In 1923, by a treaty between K. and Great Britain, the K. Gov. agreed to continue to be under Brit. protection, and also to accept a Brit. adviser. Padi and rubber are the chief agric. products of K., and the areas under these crops in 1938 were 257,890 ac. (about 400 sq. m.) and 302,600 ac. (about 473 sq. m.) respectively. Other crops of commercial importance are coco-nuts, arecanuts, tapioca, bananas, and other fruit of various kinds. Tobacco, coffee, chillies, ground-nuts, sago, sweet potatoes, and kapok are fairly widely, though sporadically, planted, and are of some economic importance locally. The railway connecting Malaya with Siam passes through K. Pop. (1955) 682,949 (Malays and other Malaysians, 458,941; Chinese, 141,945; Indians and Pakistanis, 68,577; Siamese, Europeans, and others, 13,486).

**Kedgeree**, Indian dish of rice, boiled with onions, eggs, pulse, and butter. In European cookery it is a breakfast dish of cooked fish, usually flinnan haddock, boiled rice, and hard-boiled egg.

**Kedleston**, Marquess of, *see* CURZON.

**Kedron**, or Kidron, valley lying E. of Jerusalem, down which the torrent-bed of the brook K. runs towards the Dead Sea; near it is the garden of Gethsemane. It was crossed by Christ on His way there and by David in his flight from Absalom.

**Keel** (botany), *see* CARINA.

**Keeler**, James Edward (1857-1900), Amer. astronomer, *b.* La Salle, Illinois. In 1890, when he was working in the Lick Observatory, he showed by means of photography that a large percentage of the small nebulae of the heavens are spiral, and measured the line-of-sight velocities of some bright line nebulae. Five years later, when he was director of the Allegheny Observatory, he verified by spectroscopic investigations the theory already advanced that Saturn's rings consisted of 'discrete particles of unknown minuteness.' His *Spectroscopic Observations of Nebulae* was pub. in 1894.

**Keeley**, Mary Ann, née Goward (1806-1899), actress. She left a lasting impression on all who saw her spirited impersonation of Jack Sheppard in a play founded on Alsworth's novel of that name. The hero, however, was a criminal, and the performance of the piece was accordingly forbidden. In 1829 she married the comedian Robert K. (1793-1869). Two of her finest roles were Nydia in *The Last Days of Pompeii* and Smilke in *Nicholas Nickleby*.

**Keeling**, or Cocos, Islands, group of 23 small coral is. in the Indian Ocean, 12° 5' S. and 96° 53' E. Discovered by Capt. Keeling in 1609, they came under Brit. protection in 1856, and since 1886 have been annexed to the Straits Settlements. Formerly owned by one Alexander Hare, who lived with some 200 slaves given to him by the rajah of Bandjer. Hare left in 1825, the next possessor being John Clunies-Ross, whose family has ruled the is. since that time. They

abound in coco-nut palms, and enjoy an equable, invigorating climate. Feroacious land-crabs are numerous. In the First World War the Ger. raider *Emden* destroyed the wireless station of the is., and it was off the coast of the is. that the *Emden* was destroyed. The is. were a Brit. bomber base in the Second World War, and were transferred to Australia on 23 Nov. 1955. Pop. about 1000.

**Keene**, Charles Samuel (1823-01), artist, *b.* Hornsey, at the age of 19 was apprenticed to a firm of wood-engravers. He soon began to indulge his artistic tastes, and illustrated *Robinson Crusoe* and other works. After contributions to the *Illustrated London News* his drawings began to appear in *Punch*, 1851, the staff of which he joined after 9 years' steady work, being recognised as a worthy successor of John Leech. The literary fun of his *Punch* drawings was largely supplied by his friend Joseph Crawhall, but as a black-and-white artist he had no rival. The beauty of his studies as serious works of art was rightly appraised by such fastidious critics as Degas and Whistler (q.v.v.). He produced also some excellent etchings and a few water-colours. There are biographies by G. S. Layard, 1892, and D. Hudson, 1947.

**Keene**, city on the Ashuelot R., 40 m. W. of Manchester, and the co. seat of Cheshire co., New Hampshire, U.S.A. K., which is situated on a level expanse guarded by high hills, manu. boots and shoes, chairs, textiles, machinery, tools, and has railway workshops. Pop. 15,630.

**Keeper of the Great Seal**, officer of state who holds the great seal, i.e. the lord high chancellor (q.v.), formerly called the lord keeper. The delivery of the great seal into the hands of the chancellor confers the chancellorship upon him (*see* SEAL). On a demise of the Crown, when a new great seal must be made, the old seal belongs to the chancellor, though it is first theoretically broken or 'damasked' by a light blow with a hammer. *See* Lord Campbell, *Lives of the Chancellors*, 1845-7.

**Keeper of the Rolls** (*Custos Rotulorum*), in England a justice of the peace to whose custody are committed the records or rolls of the co. sessions. It is the practice to appoint as K. of the R. the lord-lieutenant of the co.

**Keeshond**, or Dutch Barge Dog, medium-sized, sturdily built, with erect ears and curled tail. It has a long top coat and short, very thick under-coat, grey in colour, with darker shading forming 'spectacles' round the eyes. Handsome, intelligent, and quiet, the breed is becoming increasingly popular; though generally regarded as a new arrival in Britain. It is in fact identical with the Wolf Spitz or large Pomeranian, known in that country for over 150 years.

**Keeowatin** (N. wind), former dist. of NW. Canada, now absorbed in the provs. of Manitoba, Ontario, and the NW. Terrs.

**Kefauver**, Estes (1903- ), U.S. politician, *b.* Madisonville, Tennessee, and graduated from the univ. of Tennessee,

1924, Yale Univ., 1927 (LL.B.). He was admitted to the Tennessee Bar in 1926, and practised law in Chattanooga. K. was elected as a Democrat to the U.S. House of Representatives in 1939, and served there until elected to the Senate in 1949. In 1950 and 1951 K.'s activities as chairman of the Senate crime investigating committee received nation-wide publicity, largely because the hearings were televised. His book concerning the findings of this investigation, *Crime in America*, appeared in 1951. He was among the Democratic aspirants for the presidential nomination in 1952 and 1956, but was defeated on both occasions by Adlai E. Stevenson (q.v.). In 1956 K. was nominated for the vice-presidency with Stevenson but the Democrats were unsuccessful in gaining the presidency.

**Keflavik**, tn and fishing port in Iceland, on the S. coast of Faxaflói, 32 m. S. of Reykjavik by road. K. airport is the largest airport in Iceland and one of the largest in the world. The airport is also a N.A.T.O. military base manned by U.S. forces. Pop. 3452.

**Kehl**, Ger. tn in the *Land* of Baden-Württemberg (q.v.), on the r. b. of the Rhine (q.v.), opposite Strasbourg. As a vil., in the closing years of the 18th cent., it was made famous by the exploits of Desaix de Veygoux and Gouvion-St-Cyr (qq.v.). During the Second World War it was taken by the Allies on 15 April 1945, its capture clearing the way for bridging to be started at Strasbourg. Pop. 12,000. See Stendhal, *Memoirs of Marshal Saint-Cyr*.

**Kei Islands**, see KAI.

**Keighley**, municipal bor. of Yorks (W. Riding), England, near the confluence of the R.s. Worth and Aire, 9 m. NW. of Bradford, producing woollen and worsted goods, textile machinery, and general engineering products. Pop. 56,600.

**Keijo**, see SEOUL.

**Keimaneigh**, Pass of (the deer's pass), highest point on the main road from Cork to Glengariff, in a narrow, rock-bound gorge.

**Keir, Sir David Lindsay** (1895- ), Scottish constitutional historian. Educ. at Glasgow Univ. and New College, Oxford, he became a fellow of Univ. College in 1921, was univ. lecturer in Eng. constitutional hist. from 1931 until his appointment in 1939 as president and vice-chancellor of Queen's Univ., Belfast. In 1949 he became master of Balliol College, Oxford. He was knighted in 1946. Pubs.: *Cases in Constitutional Law* (with F. H. Lawson), 1928, and *Constitutional History of Modern Britain*, 1938.

**Keir Hardie, James**, see HARDIE.

**Keiser, Reinhard** (1674-1739), Ger. composer, son of an organist at Weissenfels, who first taught him, and afterwards a pupil at the St Thomas School at Leipzig. After a court appointment at Brunswick he settled about 1796 at Hamburg, where there was the only opera estab. in Germany not attached to a court. There he produced most of the very large number of operas he wrote (probably well over

100), and Handel was associated with him there as a very young man in 1703-6 and was no doubt influenced by him up to a point. K.'s operas were sung in a mixture of Italian and German, and the music derived from the It. school. K. also wrote oratorios. See H. Leichtentritt, *Reinhard Keiser in seinen Opern*, 1901, and A. Schering, *Geschichte des Oratoriums*, 1911.

**Keith, Sir Arthur** (1866-1955), physiologist and anthropologist; b. Old Machar, Aberdeen, son of John K. Educ. univ. of Aberdeen and Leipzig; Univ. College, London. President, Royal Anthropological Institute, 1912-14; Fullerian prof. of physiology, Royal Institution, 1912-23; secretary, Royal Institution, 1922-6; president, Brit. Association, 1927. Pubs.: *Introduction to the Study of Anthropoid Apes*, 1896, *Embryology and Morphology*, 1901, *Ancient Types of Man*, 1911, *The Human Body*, 1912, *Antiquity of Man*, 1915, *Menders of the Maimed*, 1919, *Engines of the Human Body*, 1919, *Nationality and Race*, 1920, *Religion of a Darwinist*, 1925, *Concerning Man's Origin*, 1927. Ed. Hughes's *Practical Anatomy*, 1902, and helped to edit Treves's *Surgical and Applied Anatomy*. In 1925 K. pub. the second ed. of his *Antiquity of Man*, since which year there has been an intensive search for the remains of fossil man. In 1931 he pub. *New Discoveries relating to the Antiquity of Man*, a work which examined the discoveries of the past 5 years. Other works include *Darwinism and its Critics*, 1935, *Stone Age of Mount Carmel Human Fossil Remains* (with T. D. McCoun, 1939), *New Theory of Human Evolution*, 1948, *Autobiography*, 1950.

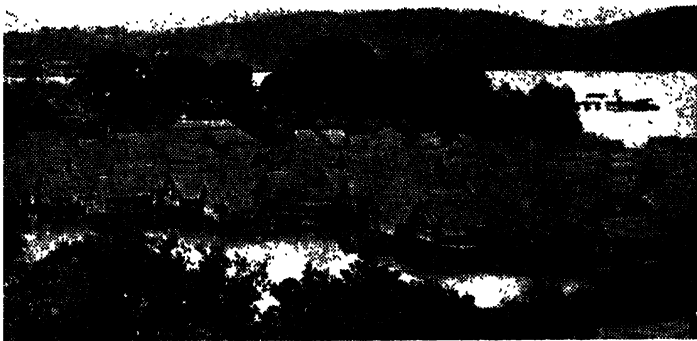
**Keith, Arthur Berriedale** (1879-1944), Sanskritist and constitutional lawyer, b. Dunbar; educ. at Royal High School, Edinburgh, Edinburgh Univ., and Balliol College, Oxford. In 1907-8 he was deputy Boden prof. of Sanskrit at Oxford, and in 1914 became regius prof. of Sanskrit and comparative philology at Edinburgh, which chair he held for 30 years. He was a writer of great industry and erudition in two widely different fields of study: Indian studies and constitutional law. He ed. the catalogues of the Sanskrit and Prakrit MSS. in the Bodleian Library and the Indian Institute Library, at Oxford (4 vols.), 1904-11, and of the India Office Library (vol. ii), 1935. He also ed. sev. Sanskrit texts and pub. *Classical Sanskrit Literature*, 1923 (2nd ed., 1927), *Buddhist Philosophy*, 1923, *History of Sanskrit Literature*, 1928, and other important works. In constitutional law his voluminous treatises kept him abreast of a constitutional system that seemed to be moving somewhat too fast for him, and at times he seems to mingle his own prejudices and opinions on ephemeral issues of party politics with his constitutional exposition. His most competent works in this field are *Responsible Government in the Dominions*, 1909 (2nd ed., in 3 vols., 1912; revised ed., 2 vols., 1928), *The Sovereignty of the British Dominions*, 1929, *Constitutional*

*History of the First British Empire*, 1930, *The Governments of the British Empire*, 1935, *A Constitutional History of India, 1800-1935*, 1936, *The King and the Imperial Crown*, 1938, *The Constitution of England from Queen Victoria to George VI*, 1939, *Constitutional Law*, 1939, *The British Commonwealth*, 1941, *Federation: its Nature and Conditions*, 1942, and *The Constitution under Strain*, 1942.

Keith, George Elphinstone Keith, Viscount (1746-1823), Eng. admiral, distinguished himself as commander of the *Perseus* under Lord Howe in the siege of Charleston (1780), and again under Lord Hood during the siege of Toulon (1793). In 1796 he wrested from the Dutch their

accepted a professorship of his science at Ghent (1858) and later at Bonn Univ. (1865). Besides editing *Annalen der Chemie* he pub. *Lehrbuch der organischen Chemie*, 1861-87. His 'closed-chain' theory of benzene (q.v.) gave a remarkable stimulus to the preparation of aniline dyes, whilst his doctrine of valency played an important part in the development of chemical theory. See F. R. Japp, 'Kekulé Memorial Lecture,' in the *Journal of the Chemical Society*, 1898, and R. Anschütz, *Kekulé*, 1929.

Kelantan, state of the Federation of Malaya and, prior to the formation after the Second World War of the Malayan Union (which was in turn succeeded by



A VILLAGE ON PILES, KELANTAN

E.N.A.

settlement in the Cape of Good Hope, and obliged a detachment of their fleet to surrender in Saldanha Bay. The following year he assisted in the suppression of the mutiny at Sheerness, and in 1799, as commander in Sp. waters, effected a skillful landing at Aboukir.

Keith, James Francis Edward, known as Marshal Keith (1696-1758), soldier, b. near Peterhead, son of an old Scottish family. He took part in the Jacobite landing of 1719, and then did military service in Spain and in Russia, where he became a general, 1737. Afterwards he entered the service of Frederick the Great, and rose to field-marshal's rank. Killed at Hochkirch.

Keith, burgh and mrkt tn of Banffshire, Scotland, 50 m. NW. of Aberdeen, an agric. centre with tweed manufs. and whisky distilleries. Pop. 4365.

Kekkonen, Urho Kaleva (1900- ), Finnish politician and statesman, President of the Finnish Rep. since 1956.

Kekulé von Stradonitz, Friedrich August (1829-96), Ger. chemist, was persuaded by Liebig (q.v.) to take up chem., and, after studying in Giessen and conversing with leading chemists in Paris and England,

the present Federation on 1 Feb. 1948), classed as an Unfederated Malay State in treaty relations with Great Britain. It was formerly under the suzerainty of Siam, S. of the Patani States. The area is 5750 sq. m. Behind a low sandy coastline 60 m. long lies a fertile plain 1000 sq. m. in area, densely populated, and closely cultivated with rice, coco-nut, and fruit trees. S. of this plain the country is hilly and broken, the highest (6000 ft) hills forming the boundary with Perak, and those on the Pahang border also rising to 6000 ft. This part of K., though thinly populated, contains the bulk of the Brit.-owned rubber estates and also the whole of the aboriginal pop. The climate is characterised by high humidity and copious rainfall, the state being in the equatorial zone of constant precipitation. Little is known of the early hist. of K. Folklore derives the name from *glam hutan* (*Melaleuca leucadendron*), a swamp tree of the coast. Mahmud, the last Sultan of Malacca, who ruled from 1488 to 1511, conquered K. A Pahang raja, Ali Jalla Riayat Shah, who was Sultan of Johore, 1580-97, had a son Raja Hussin, who became ruler of K. The state cap., Kota

Bahru, which is situated 6 m. from the mouth of the K. R., appears on Portuguese and Dutch maps of the 16th cent. and then disappears till late in the 18th cent. A treaty was made in 1910 with Great Britain providing that the Sultan of K. should receive a Brit. adviser. The chief products of K. are rice, coco-nuts, palm oil, pepper, and tapioca. Mineral resources are said to comprise gold and manganese, besides tin and iron. Silk-weaving and boat-building are carried on. Copra, rubber, and betel-nuts are exported. The tn of Kota Bahru lies 140 m. N.E. of Penang and has a pop. of 22,765. Other tns are Kuala Krai in the S. and Pasir Puteh in the E. Total pop. (1955) 516,000 (471,700 Malays; 27,500 Chinese; 6800 Indians and Pakistanis; 9996 Siamese and others). Connected with Bangkok and also with Penang through Kedah, and through Pahang with Singapore. One of the first objectives of the Japanese in their invasion of the Malay Peninsula in Dec. 1941 was the aerodrome of Kota Bahru. There was severe fighting in the Kota Bahru area after the Japanese had landed on the beaches S. of the tn, but the Japanese, being much better armed, soon overcame resistance and continued their advance down the peninsula. See MALAYA, BRITISH, JAPANESE INVASION OF (1941-1942).

Kelát, see KALÁT.

Kellman, see CLASOMENAE.

Kellways Rock, geological name for a succession of highly fossiliferous sands and clays among which irregular calcareous sandstones are freely interspersed. The name is derived from a Wilts vil.

Keller, Gottfried (1819-90), Swiss poet and novelist, the son of a master joiner of Zürich. For 2 years he studied art in Munich, but early discovered that literature was his vocation. For 5 years he lived in Berlin (1850-5), and from 1861 to 1876 acted as secretary to his native canton. His vol. of poetry, *Gedichte*, 1846, emphasises his high creative faculty, whilst the writing of his autobiographic novel, *Der grüne Heinrich*, 1851-3, reveals an imaginative temperament readily responsive to beauty and the nobler emotions. K. was particularly felicitous in his handling of the short story, and his sketches of Swiss prov. life entitled *Die Leute von Seldwyla*, 1856, have become classics (Eng. trans. by M. Hottinger). In this vol. are *Die drei gerechten Kammerer* and *Romeo und Julia auf dem Dorfe*, the first of which shows the richness of his humorous vein, whilst the impression left by the tragic intensity of the latter does not soon pass away. A second collection, *Zürcher Novellen*, appeared in 1876, containing the famous *Landvogt von Greifensee*. See H. Mayne, *G. Keller, sein Leben und seine Werke*, 1923, and F. Burl, *Gottfried Kellers Glaube*, 1944; also lives by Ricarda Huch, 1904, and E. Ackerknecht, 1939.

Keller, Helen Adams (1880- ), Counsellor on National and International Relations, Amer. Foundation for the Blind, b. Tusculum, Alabama. Deaf and blind

from the age of 19 months as the result of illness, she was educ. under the direction of Anne Sullivan Macy (1866-1936), B.A., Radcliffe College, 1904. Studied French, German, Latin, Greek, arithmetic, algebra, geometry, hist., poetry, and literature. On behalf of the blind-deaf she has lectured in 16 countries besides the U.S.A. Her writings include *The Story of my Life*, 1902, *Optimism*, 1903, *The World I live in*, 1908, *Out of the Dark*, 1913, *Midstream—my Later Life*, 1930, *Helen Keller's Journal*, 1938, and *Let us have Faith*, 1940.

Kellermann, François Christophe de (1735-1820), Duke of Valmy and marshal of France, b. Alsace, son of a peasant; entered the army at 17; served in the Seven Years War. He was a Republican throughout the great revolution. His brilliant victory over the Duke of Brunswick at Valmy (1792) delivered the infant rep. from the dread of Prussian domination, and, in the words of Goethe, 'opened a new era in the world's history.' Under Napoleon he was given the command of the reserves on the Rhine. In 1804 he became a marshal, and in 1809 Duke of Valmy. His support of the Bourbons after 1814 was rewarded with a seat in the Chamber of Peers.

Kellett, Ernest Edward (1864-1950), Brit. critic and essayist, was educ. at Kingswood and Oxford. Taking up teaching, he became senior Eng. master at Leys School. At the age of 59 he turned to critical writing and produced 2 vols. of essays: *Suggestions*, 1924, and *Reconsiderations*, 1928. In 1929 he pub. *The Northern Saga*, trans. from the Icelandic, and *The Story of Myths*. Further critical works were *Fashion in Literature*, 1931, and *Literary Quotation and Allusion*, 1933. *A Pageant of History* appeared in 1936 and *Aspects of History* in 1938. In 1911 he had ed. *The Book of Cambridge Verse*. *As I Remember* is a collection of reminiscences.

Kelley, Edward (1555-95), alchemist, b. Worcester, trained as an apothecary and early acquired some skill in chem. John Dee (q.v.) cast his horoscope and later figured prominently in his life. K. is supposed to have been educ. at Gloucester Hall, Oxford, but apparently under the assumed name of Talbot. In the ensuing years he figures as a fraudulent scrivener and attorney in London. He was pilloried at Lancaster (1580) for forging anot title-deeds. He declared himself an adept in the occult sciences. Acting on 'supernatural' advice Dee decided to co-operate with K. in researches in that science, and K. thenceforth became Dee's 'skryer' or speculator, interpreting the wishes of the spirits to his master by means of magic crystals—Dee thus becoming the dupe of his own assistant. He went to Bohemia, where he practised crystallogamy at the court of Rudolf II (1583-9), was imprisoned in Prague and lost his life in trying to escape. Though a charlatan, K. was a man of considerable abilities and imagination, and is credited with 2 poems and other writings, including a treatise in



...hers' stone, issued in 1766. He figures in Butler's *Hudibras* (canto iii).

**Kellgren, Johan Henrik** (1751-95), Swedish poet and critic, b. Flöby. At first critic and later editor of the *Stockholms posten*, he led the attack against the revolutionary school of Thorild, thus anticipating the next cent.'s battle of Classics and Romantics. His own poetry is of classical perfection, and exemplifies the ideals for which he fought with such wit and satire, especially *Mina Lofen*, 1778, and *Vära Villor*, 1780. He was a master also of sensuous love poetry, as in *Den nya Skapelsen*, 1789. He was one of the first members of the Swedish Academy (1786), and is thought the greatest Swedish poet of his generation. See O. Sylwan, *J. K. Kellgren*, 1939, and N. Gyllenbaga, *Kellgrens rutn*, 1943.

**Kellogg, Frank Billings** (1856-1937), Amer. lawyer and politician, b. Potsdam, New York. He was elected to the U.S. Senate for the term 1917-23. In 1924 K. became Amer. ambas. in London, resigning in 1925 to become secretary of state in President Coolidge's Cabinet, which position he held until 1929. During his term of office America intervened in Nicaragua, thus beginning what the Latin Americans call the U.S.A.'s dollar diplomacy or dollar imperialism. For his part in the K. Pact (q.v.) he was awarded the Nobel peace prize for 1929. K. was a judge of the permanent court of International Justice, 1930-5.

**Kellogg Pact.** The K. P., officially called the Paris Pact of 1928, was initiated by Frank B. Kellogg (q.v.), U.S. secretary of state, in association with Briand of France. It consists of only 3 paragraphs of which the most important is a declaration condemning recourse to war for the solution of international controversies and renouncing war as an instrument of national policy in the relations of the signatories with one another. The pact was concluded on 27 Aug. 1928, and before the year was concluded 59 nations out of 67 comprising the world of independent states had signed it: but it had little practical effect on international politics. See D. H. Miller, *The Peace Pact of Paris*, 1928.

**Kells (Ceannannus Mor)**, mkt tn of co. Meath, Rep. of Ireland, 38 m. NW. of Dublin, connected with Dublin and Drogheda by rail. Its interest is antiquarian. In the churchyard stands an auct round tower (99 ft) and in the market-place a carved stone cross. The connection claimed for a stone-roofed cell with 6th cent. St Columcille (q.v.) is unsupported. Pop. 2125.

**Kells, Book of**, finest extant early Irish illuminated MS. of the Gospels written in Latin, and dating from the 8th or early 9th cents. It is now preserved in Trinity College, Dublin. As an example of its remarkable ornamentation it may be noted that in one space of about  $\frac{1}{4}$  in. square may be counted, with a magnifying glass, no fewer than 158 interlacings of a slender ribbon pattern, formed

of white lines, edged with black ones, upon a black ground. Hence the tradition that these unerring lines should have been traced by angels—'tam delicatas et subtiles . . . tam nodosas et vinculatim colligatas . . . notare poteris intricatas, ut vere haec omnia angelica potius quam humana diligentia jam asseveraveris esse composita' (Giraldus Cambrensis).

**Kelly, Howard Atwood** (1858-1943), Amer. gynaecological surgeon, b. Camden, New Jersey. He received his medical education at the univ. of Pennsylvania, graduating in 1882. He was prof. of obstetrics there, 1888-9, and was then appointed prof. of obstetrics and gynaecology at Johns Hopkins Univ., retiring in 1919. He became the recognised leader of his specialty in America. He was a pioneer in the development of local anaesthesia; he introduced new diagnostic and operative techniques and invented a number of gynaecological instruments. He made a notable contribution to the development of the new hospital and medical school of Johns Hopkins Univ. and is one of the 'four doctors' portrayed in J. S. Sargent's painting of W. H. Welch, H. A. Kelly, W. Osler, and W. S. Halsted. His books include *Operative Gynecology*, 1898, *The Vermiform Appendix* (with E. Hurdon), 1905, *Gynecology and Abdominal Surgery*, 1907-8, *Medical Gynecology*, 1908, *Cyclopedia of American Medical Biography*, 1912, and *Dictionary of American Medical Biography* (with W. L. Burrage), 2nd ed., 1928. See A. M. Chesney, *The Johns Hopkins Hospital*, 1943.

**Kelly, Hugh** (1739-77), playwright, b. Killarney, Ireland. He came to London and lived for a time in great privation, but ultimately got a good post in an attorney's office. From about 1762 he wrote essays, poetry, criticisms, and comments on politics. His poem *Thespis, or a Critical Examination into the Merits of all the Principal Performers belonging to Drury Lane Theatre*, 1767, attracted Garrick, and *False Delicacy*, 1768, a comedy, was produced under his auspices. *A Word to the Wise*, 1770, was a failure—in Boswell's words, 'told a sacrifice to popular fury, and, in playhouse phrase, was damned'—owing to a demonstration by John Wilkes and his supporters. Johnson wrote a prologue for a benefit performance of the play in 1777. K. also pub. *Clementina*, 1771 (a tragedy), *The School for Wives*, 1773, *The Romance of an Hour*, 1774, and *The Man of Reason*, 1776. See M. Schorer, *Hugh Kelly: his Place in the Sentimental School*, 1933.

**Kelly, James Fitzmaurice**, see FITZMAURICE-KELLY.

**Kelly, Michael** (1762-1826), Irish actor and musician. He appeared as a child actor in Dublin, and studied music under Michael Arne and others, also singing under various It. masters. In 1779 he went to Italy for further studies; engaged at the Vienna Court Opera for 4 years; became friendly with Mozart and sang Basilio in the first performance of *Figaro*. He went to London in 1787, became

manager of the King's Theatre, London, from 1793, and wrote the musical settings for many plays, including Sheridan's *Pizarro*. His *Reminiscences*, composed from his own materials and written by Theodore Hook, 1826, are very interesting.

**Kelmescott Press**, see MORRIS, WILLIAM.  
**Kelp**, product of the combustion of seaweeds. It appears as hard, dark-greyish masses, and that of most value is obtained from driftweed, such as *Fucus vesiculosus*, *F. serratus*, *Laminaria digitata*, and *L. stenophylla*. These are dried in the sun and burnt in shallow pits, 1 ton of K. being obtained from about 20 tons of seaweed. The product consists chiefly of potassium sulphate, 14 per cent; potassium chloride, 17 per cent; sodium chloride, 14 per cent; sodium carbonate, 4 per cent; and smaller quantities of potassium and sodium iodides and other salts. The value of the K. lies in its iodine content. The K. is mixed with manganese dioxide and concentrated sulphuric acid and distilled, when iodine vapour comes off and is condensed in flat receivers called udeles. See IODINE and SEAWEED.

**Kelpie** ('tangle' or 'shelly-coat'), in Scottish mythology, a kind of water-sprite or riv. genius, usually with the appearance of a shaggy horse (sometimes of a man), supposed to appear as a warning to those destined shortly to be drowned near the spot where it appears.

**Kelso**, burgh and mkt. tn in Roxburghshire, Scotland, 42 m. SE. of Edinburgh. The Tweed here joins the Teviot, crossed by a handsome 5-arch bridge. There are the ruins of an abbey founded 1128. Sir Walter Scott was a pupil at the old grammar school in 1783. K.'s chief industries are manures, oil cake, iron founding, and implements. Pop. 4100.

**Kelt**, see SALMON.

**Keltsy**, see KIELCE.

**Kelty**, vil. of Scotland in Fifeshire and Kinross-shire, 6 m. NE. of Dunfermline, with coal-mines. Pop. 7800.

**Kelvin**, William Thomson, 1st Baron Kelvin of Largs (1824-1907), scientist, b. Belfast, educ. at Glasgow, Cambridge, and Paris. After a distinguished college career he became prof. of natural philosophy at Glasgow Univ. (1846-99). He ed. various mathematical joun., contributing to them the results of his researches in physical phenomena, electricity, heat, magnetism, elasticity, vortex motion, etc. He was knighted (1866) for his discoveries in the transmission of electrical currents, and was electrical engineer for various ocean telegraphs, beginning with the Atlantic cable (1857) and ending with the Mackay-Bennett cable (1879). Lord K. made great improvements in signalling apparatus, and invented a new form of mariner's compass (1873-8), and a deep-sea sounding machine. He did most valuable work also in thermodynamics, and was the first to define the Absolute Thermodynamic Scale of Temp., the units of which are degrees Kelvin ("K.") or degrees Absolute ("A") (see ABSOLUTE TEMPERATURE and METROLOGY). He was president of the Brit. Association in 1871, of

the Royal Society from 1890 to 1895, and was given the title of Lord K. in 1892. His various papers have appeared in book form as *Mathematical and Physical Papers*, 1882-4, *Electrostatics and Magnetism*, 1884, *Popular Lectures and Addresses*, *Baltimore Lectures* . . . , 1904. With P. G. Tait he wrote *A Treatise on Natural Philosophy*, 1879-83. See C. Bright, *Story of the Atlantic Cable*, 1903; also lives by O. Munro, 1902; A. Grey, 1908; S. P. Thompson, 1910; A. King, 1925; H. N. Casson, 1930.

**Kelvin Balance**, instrument for the measurement of currents and, in a slightly modified form, used as a wattmeter. Flat circular coils carrying the current are connected in series and so arranged that the force of repulsion or attraction between them can be measured. The 4 coils,



A, B, C, and D, are fixed, and E and F are at the ends of a beam pivoted about O. With the currents flowing, a weight W is moved along the beam to restore the coils E and F to some standard position, and the distance from O is measured. The balance must be calibrated by means of a silver voltammeter. See CALIBRATION and CURRENT ELECTRICITY.

**Kelvin Effect**, or Thomson Effect, see THERMOELECTRICITY.

**Kelvin's Absolute Scale of Temperature**, see ABSOLUTE TEMPERATURE and THERMODYNAMICS.

**Kemal**, see ATATÜRK.

**Kemble**, Charles (1775-1854), actor, made his first appearance at Drury Lane in 1794, and quickly rose to an important position in his profession. He played leading parts in London for many years, and in 1822 became manager of Covent Garden. His farewell performance in 1836 was as Benedick at the Haymarket. Although he played the prin. tragic roles his successes were made in comedy.

**Kemble**, Frances Anne (Fanny), afterwards Mrs Butler (1809-93), actress, was the daughter of Charles K. At the age of 20 she appeared as Juliet at Drury Lane under her father's management, and at once achieved a great success. Both in England and America she became very popular, and remained so until her final retirement in 1849. She wrote sev. plays and poems, and *Notes on some of Shakespeare's Plays*, 1882; she also pub. the very interesting autobiographical *Record of a Girlhood*, 1878, *Records of Later Life*, 1882, and *Further Records*, 1891. She was a very charming person, and was much beloved by men of letters, especially Edward FitzGerald, whose letters to her have been ed. by W. A. Wright, 1895. See H. Gibbs, *Affectionately Yours, Fanny*,

1947; also lives by D. Bobbé, 1931, and M. Armstrong, 1938.

**Kemble, John Philip** (1757-1823), actor, b. Prescott, Lancs. He was sent to a Rom. Catholic school to be trained for a priest, but he decided that he had no vocation. In 1776 he played Theodosius at Wolverhampton, and remained in the provs. until 1783, when he appeared at Drury Lane as Hamlet—a performance that aroused much controversy. For 19 years he was at Drury Lane, playing most of the great Shakespearian roles. He was brother of Sarah Siddons. There is a biography by H. Baker, 1942.

**Kemble, Maria Theresa** (1774-1838), actress, came to England from Vienna about 1786, and acted at Drury Lane under her maiden name of de Camp. She made a popular success 6 years later as Macheath in *The Beggar's Opera*, and thereafter played leading parts, including Portia and Desdemona. After her marriage to Charles K. in 1806 she continued to act until her retirement in 1819. In 1808 she played in her own comedy, *The Day after the Wedding*, at Covent Garden on the occasion of her husband's benefit.

**Kemel Hussein, or Hosain** (1853-1917), first Sultan of Egypt. He succeeded Abbas Hilmi in Dec. 1914, the Brit. Gov. deposing the latter in the fourth month of the First World War because it was manifest that he was making every preparation to side with the Turks and Germans. On his death in 1917 he was succeeded by his brother, Prince Ahmed Fuad (q.v.).

**Kemerovo**: 1. Oblast in S. Siberia, situated largely in the Kuznetsk basin (q.v.). There are large and varied coal deposits, also iron ore, zinc, manganese, and gold. It has coal-mining, iron and steel (since 1771), non-ferrous metallurgical, chemical, and engineering industries. Agriculture specialises in dairy farming and growing potatoes and other vegetables. The prin. tns are K., Stalinsk, Prokop'yevsk, Leninsk-Kuznetskiy, Anzhero-Sudzhensk, and Kiselevsk. It is an area of rapidly expanding industry and of labour camps. Area 36,900 sq. m.; pop. (1956) 2,626,000, mostly Russians (since 17th cent.), also Shorians (q.v.); it is the most densely populated oblast in Siberia.

2. (until 1932 Shcheglovsk) Cap. and one of the economic and cultural centres of the above, on K. Tom', a trib. of the Ob'. It has a large chemical industry (since 1916), also engineering and coal-mining industries. It was founded in 1918, through fusion of the 2 vils. Shcheglova (founded 1720) and K. (founded 1863); the tn has constantly grown in industrial importance since 1929. In 1943 it became cap. of the newly created K. oblast. Pop. (1956) 240,000, third place in the Kuznetsk basin (1928, 22,000; 1939, 133,000).

**Kemmel Hill**, important position on the W. front in the First World War, acting as an essential observation post for the Brit. troops below the Messines Ridge. It was the scene of very bitter fighting during 24-7 April 1918, in the Lys battle, the Germans, by sheer weight of men and

metal, forcing the British and French to give way; but they were unable to exploit these successes.

**Kemp Land**, Australian Antarctic Ter., see ANTARCTICA.

**Kempe, Anna Eliza**, see BRAY.

**Kempen**: 1. Ger. tn in the Land of N. Rhine-Westphalia (q.v.), 6 m. WNW. of Krefeld (q.v.), manufacturing textiles. K. was the bp. of Thomas à Kempis (q.v.). Pop. 9850.

2. Or Campine, region of NE. Belgium stretching between the R.s Scheldt and Meuse to the N. of the Dyle and the Demer. The dist. is chiefly in the prov. of Antwerp, but it extends also into Belgian Limbourg and Dutch Brabant. Two important canals pass through the Campine, of which the latest, the Albert Canal, has been planned to assist the wide industrialisation of the region because the sandy heath land covers an important coal basin whose exploitation commenced only in 1918. Hasselt, Herentals, and Turnhout are the chief tns.

**Kempenfelt, Richard** (1718-82), rear-admiral, served with distinction in the W. Indies and under Pocock in India (1758-9). When Lord Howe was commander of the fleet (1782) K. served under him. He went down with the *Royal George* at Spithead. Howe adopted and improved his system of signalling. He wrote religious poetry, including the lyric *Bursl, ye Emerald Gates*.

**Kempis, Thomas à** (c. 1379-1471), Augustinian canon and religious writer, called after his bp. Kempen, near Düsseldorf. His surname was Hammerken, and he came of a peasant family. In 1399 he was admitted into the Augustinian convent of Mt St Agnes at Zwolle, and took the vows in 1406. He was a prolific writer, but by far the most celebrated of his treatises is the *Imitatio Christi*, which has been trans. into more languages than any other book except the Bible. The earliest Eng. trans. now in Magdalen College, Oxford, is that of Pynson, dated 1438. A controversy has raged around the authorship of the *Imitation*, the other candidates being Jean Gerson, chancellor of the univ. of Paris, and the abbot of Vercelli, but the learned, as well as the popular, verdict is in favour of the traditional authorship of a K. The *Imitation*, with its combination of simple faith and mysticism, appeals to all manner of men and women of all denominations. It has great literary beauty. An ed. of the complete works was ed. by M. J. Pohl (1902-1922). See BRETHREN OF COMMON LIFE. See also S. Kettlewell, *Authorship of the De Imitatione*, 1877, and *Thomas à Kempis and the Brothers of the Common Life*, 1882 (Liddon's trans., 1889; Biggs, 1898); F. R. Cruise, *Outline of the Life of Thomas à Kempis*, 1904; J. de Montmorency, *Thomas à Kempis: his Age and Book*, 1906; also lives by J. Brewer, 1676; F. R. Gulse, 1887; J. C. Montmorency, 1906; J. Williams, 1910; A. Klöckner, 1921.

**Kempsey**, tn on Macleay R., in New S. Wales, Australia, 313 m. N. of Sydney. The prin. rural pursuits in the surrounding

dists. are dairying and maize-growing. Pop. 7740.

**Kempston**, tn of Beds, England, adjoining Bedford, the chief industries being the making of electric lamps and crayons, and light engineering. It has the H.Q. barracks of the Beds and Herts Regiment, and has a large military training camp. Civilian pop. 9000.

**Kempten**, Ger. tn in the *Land* of Bavaria (q.v.), on the Iller, a trib. of the Danube (q.v.), 65 m. WSW. of Munich. It was first mentioned by Strabo (q.v.), and its monastery was founded in the 8th cent. It has a notable baroque church, other old churches, a Gothic tn hall, and the former palace of the abbot-princes. The tn is an important milk, butter, and cheese market; there are textile, paper, and engineering industries. Pop. 42,000.

**Kempton Park**, in the par. of Sunbury, Middx, England, near the Thames. A racecourse was estab. there in 1889, the prin. event being the Great Jubilee Handicap in the spring.

**Kemsley**, of Farnham Royal, James Gomer Berry, 1st Viscount (1883- ), journalist and newspaper proprietor, b. Merthyr Tydfil, Wales. He is the younger brother of Lord Camrose (q.v.), with whom he was for many years closely associated in many important newspaper enterprises. By 1925 they were the foremost newspaper proprietors in Great Britain, obtaining control of Amalgamated Press in 1926. In 1937 Camrose and K. separated their interests. K. took over his brother's interests in Allied Newspapers, which in 1943 changed its name to K. Newspapers. In 1947 this company's 23 newspapers, including the London *Sunday Times*, *Daily Graphic*, and *Sunday Graphic*, had a sale of over 9,000,000. K. was created a baronet in 1928, a baron in 1936, and became a viscount in 1945.

**Ken**, Thomas (1637-1711), celebrated prelate and one of the fathers of hymnology, b. Little Berkhamsted, Herts. Educ. at Winchester and New College, Oxford, graduating in 1664. At the age of 25 he took orders and held successively the country livings of Little Easton (Essex), Brightstone (Isle of Wight), and E. Woodhay (Hants). In 1674 he visited Rome with young Isaac Walton, his step-sister's son, which resulted in confirming his regard for the Anglican Church. In 1679 Charles II made him chaplain to Mary, wife of William of Orange, and in 1685 nominated him bishop of Bath and Wells. The chief public event of his bishopric was his trial and acquittal as one of the 'seven bishops' who, in 1688, refused to read the Declaration of Indulgence. In 1691 he was superseded by Dr Kidder, dean of Peterborough, for refusing to take the oath of allegiance to William of Orange. Amongst the many beautiful hymns written by K. are 'Awake my Soul and with the Sun' and 'Glory to Thee, my God, this Night.' See lives by W. L. Bowles, 1830; J. Lavicount Anderson, 1834; S. H. Plumpton, 1838, 1890.

**Ken Wood**, on the E. side of Hampstead Heath, in the bor. of St Pancras, London.

It was formerly the estate of the Earl of Mansfield. The house (partly the work of Robert Adam), grounds, furniture, and art collection were given to the nation (1927) under the will of the 1st Earl of Iveagh (q.v.).

**Kenath**, in Bible times a city of Manasseh. It is generally accepted that Kanatha was a later name, and that the 2 places are identical. Probably identical with Karawat, 16 m. N. of Bozrah.

**Kendal**, Countess Ehrenhard Melusina von der Schölenburg, Duchess of (1667-1743), mistress of George I. She entered the service of the Electress Sophia and became the future George I's mistress c. 1690. When he came to England she followed him, and in 1716 was created Duchess of K., and granted valuable pensions. She had great influence over the king, but her greed made her generally unpopular.

**Kendal**, mrkt tn and municipal bor. in the co. of Westmorland, England, 22 m. N. of Lancaster. Woollens, hosiery, boots and shoes, paper, and agric. instruments are manuf. Pop. 18,500.

**Kendal Green**, dye resulting from a mixture of woad and the dye made from the flowers of *Genista tinctoria*.

**Kendall**, Edward Calvin (1886- ), Amer. biochemist, b. S. Norwalk, Connecticut, and educ. at Columbia Univ., New York. He was prof. of physiological chem. and head of the section of biochemistry at the graduate school, Mayo Clinic, Rochester, from 1914 to 1951, and is now prof. emeritus. His work has included the isolation of thyroxine, the hormone of the thyroid gland (1914), the synthesis of glutathione (1929), and the isolation and synthesis of hormones of the adrenal cortex, including cortisone (since 1930). For this last work he shared the Nobel prize for medicine in 1950.

**Kendall**, Henry Clarence (1841-82), Australian poet, b. near Ulladulla, New S. Wales. While a boy he was taken for a 2 years' cruise in the S. Seas. He worked first in a solicitor's office in Sydney, then entered the State Survey Dept. His *Poems and Songs* were pub. in 1862, and having won a prize for his poems 'Death in the Bush' and 'The Glen of Arrawatta' he removed to Melbourne, where he wrote *Leaves from Australian Forests*, 1869. Discouraged by poverty, he returned to Sydney and became a clerk in a timber business. In 1880 his *Songs from the Mountains* appeared, and in the following year he was appointed inspector of state forests, but prosperity came too late; his constitution gave way and he d. a year later. K. is reckoned the father of Australian native poetry; his verses were collected in a single vol. in 1903. See also AUSTRALIAN LITERATURE.

**Kendo** (swordsmanship), art of using the Jap. military sword. It began with the rise of the Samurai (q.v.) class in the 9th and 10th cents., was steadily developed, and culminated in the early 17th cent. with such exponents as Miyamoto Musashi, who is also recognised as one of the greatest painters, sculptors, and philosophical writers of Japan. The Samurai

regarded K. not only as a military art, but also as an essential part of spiritual and moral training, aiming at the harmonious unit of body and soul. When the Tokugawa Shogunate gov. was overthrown in 1858 there were at least 150 schools of swordsmanship. Until the Second World War K., judo (q.v.), or archery was compulsory in middle school education.

**Kenealy**, Edward Vaughan Hyde (1819-1880), Irish barrister and author, called to the Eng. Bar in 1847. In 1873 he became leading counsel for Orton, the Tichborne claimant, and his unprofessional and

2. Suburb of Cape Town (q.v.), S. Africa. It has a racecourse.

**Kenites**, kinsfolk of the Midianites (Num. x. 29; Judges iv. 11), nomads, some of whom joined the Israelites (Num. xxiv. 21; Judges i. 16). They resided at Sinai, where Moses took refuge with them, and married the daughter of a Kenite priest, Jethro, Reuel, or Hobab (Exod. ii. 18 ff.; iii. 1; Num. x. 29; Judges iv. 11), who had great influence on him (Exod. xviii). Jael, who killed Sisera in his sleep, was the wife of a Kenite (Judges v. 24).

**Kenmare**, tn and beauty spot in co.



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KENILWORTH CASTLE

violent conduct throughout the case was censured by the jury. Founding the *Eng. Ishman*, 1874. K. still upheld Orton's claim, and after libellous attacks on Cockburn and others was disbenched by Gray's Inn. He wrote *Brallaghan or the Deipnosophists*, 1845, *Goethe, a New Fantomime*, 1850, *Poems*, 1864 (collected 1875-9), and *Proceedings of the Tichborne Case*, 1875.

**Kenilworth**: 1. Urb. dist. of Warwickshire, England, 5 m. N. of Warwick. The castle, begun in the 12th cent., was extended by King John, and used by Henry III as a royal palace. Elizabeth I was lavishly entertained there in 1575; it was finally dismantled under Cromwell. Here are also remains of an Augustinian priory (c. 1122). K. has a variety of industries, largely associated with motor and agric. engineering; caravan and motor bodywork is manuf. Pop. 11,000. See Sir W. Scott, *Kenilworth*, 1821; J. Beck, *Kenilworth Castle*, 1845; E. H. Knowles, *Kenilworth Castle*, 1872.

Kerry, Rep. of Ireland, at the head of K. Bay. Pop. 907.

**Kennebec**, riv. of Maine, U.S.A., rising in Moosehead Lake and flowing S. into the Atlantic Ocean. It is about 150 m. long, and during its course it drops 1000 ft. It is navigable for 75 m. to Augusta, and furnishes power to Bingham, Skowhegan, Waterville, Augusta, and Gardiner. The first Eng. settlement in Maine (Fort St George) was made at the mouth in 1607.

**Kennedy**, Benjamin Hall (1804-89), Eng. schoolmaster, noted for his extensive and thorough scholarship, fellow and classical lecturer of St John's, Cambridge (1828). He was assistant master at Harrow (1830-6), and headmaster of Shrewsbury (1836-66). In 1867 he became regius prof. of Greek at Cambridge and canon of Ely. K. helped to establish Gilton and Newnham colleges. See F. D. How, *Six Great Schoolmasters*, 1904.

**Kennedy**, James (c. 1406-66), Bishop of St Andrews, and previously Bishop of

Dunkeld in which capacity he attended the council of Florence. He took a prominent part in the politics of Scotland during the minority of James II, and afterwards acted as regent during the minority of James III. He was the founder of St Salvator's College (1450).

**Kennedy, John Pendleton** (1795-1870), Amer. statesman and novelist, b. Baltimore. He became a member of Congress and secretary of the navy. He was a friend of Thackeray, whom he helped in writing *The Virginians*. Among his works are *Horseshoe Robinson*, 1835, *Life of William Wirt*, 1849, and *Mr Ambrose's Letters on the Rebellion*, 1865.

**Kennedy, Margaret** (1896- ), novelist, b. London. She was educ. at Cheltenham and Somerville College, Oxford, where she studied hist., her first pub. being *A Century of Revolution*, 1922. Her first novel was *The Ladies of Lyndon*, 1923, and in the following year she became famous with *The Constant Nymph*, which was later dramatised and filmed. In 1925 she married David Davies, a barrister. Others of her novels are *Red Sky at Morning*, 1927, *Return I Dare Not*, 1931, *Together and Apart*, 1936, *The Mechanised Muse*, 1942, *The Feast*, 1950, *Troy Chimneys*, 1953, which won the Tait Black Memorial prize, and *Act of God*, 1955. *Escape Me Never!*, 1934, is a 3-act play, and she also wrote a life of Jane Austen, 1950.

**Kenneth, St.**, see CHRYDD.

**Kenneth I.**, called MacAlpin (d. c. 860), Scottish king, son of Alpin of Dalriada (d. c. 841). He conquered the Picts (c. 843), becoming ruler of the united monarchy. He made Dunkeld the eccles. centre of his kingdom, transferring the relics of St Columba there. K. invaded England 6 times.

**Kenneth II** (d. c. 995), King of Scotland, son of Malcolm I, succeeded to the throne in 971. He was murdered in mysterious circumstances.

**Kennett, Basil** (1674-1715), Eng. miscellaneous writer, b. Postling, Kent, brother of White K. (q.v.). He was educ. at St Edmund's Hall and Corpus Christi, Oxford, of which he became a fellow in 1697. He pub. antiquarian and religious works, of which the most important are *Romae Antiquae Notitia*, or *The Antiquities of Rome*, 1696, and *A Brief Exposition of the Apostles' Creed*, 1705. Other works are a poem to Queen Anne and *Lives of the Latin Poets*. It has been suggested, on the authority of James Tyrrell, that the third vol. of White K.'s *Complæd History* was really the work of Basil K.

**Kennett, White** (1660-1728), prelate and author, b. Dover, and educ. at Westminster School and at St Edmund's Hall, Oxford. While still an undergraduate he was employed by Anthony Wood in collecting notes about eminent Oxford men. Disliking James II's eccles. policy, he joined the Low Church party and openly supported the revolution. He became prebendary of Salisbury in 1701; dean of Peterborough in 1707, and was bishop there from 1718 to 1728. He was a co-founder of the Society for the Propagation

of the Gospel and acquired a reputation as historian, antiquarian, topographer, and philologist. Among his works are *Parochial Antiquities*, 1695 (new ed., 1818), *A Register and Chronicle, Ecclesiastical and Civil*, 1728, dealing with the Restoration in more detail than his less valuable vol. iii of a *Complæd History of England* (from Charles I to Anne), 1706. This latter work has been attributed to his brother Basil. See life by W. Newton, 1730.

**Kenney, James** (1780-1849), dramatic writer, b. Ireland. He first attained popularity by his farce *Raising the Wind*, 1803, produced at Covent Garden. He wrote more than 40 dramas and operas, including *False Alarms*, 1807, *The World*, 1808, *Love, Law, and Physic*, 1812, *The Sicilian Vespers*, 1840, a tragedy, and the most popular, *Sweethearts and Wives*, produced at the Haymarket in 1823, and revived sev. times. K. was a friend of Rogers and Lamb. See P. W. Clayden, *Rogers and his Contemporaries*, 1889.

**Kennicott, Benjamin** (1718-83), cleric and Heb. scholar, b. Totnes and educ. at Wadham College, Oxford. His dissertations *On the Tree of Life in Paradise* and *On the Oblations of Cain and Abel* won him his B.A. and election as fellow of Exeter College, Oxford (c. 1747). He pub. *The State of the Hebrew Text of the Old Testament Considered* in 1753, unfolding his intention of labouring to improve the Heb. text by the collation of Heb. MSS. K. met with opposition from Warburton, Horne, and others, but gained the support of most of the clergy. Aided by many learned Eng. and continental scholars, he produced the *Vetus Testamentum Hebraicum cum variis Lectionibus*, 1776, for which over 600 Heb. MSS. and 16 MSS. of the Samaritan Pentateuch (q.v.) were consulted. These latter he valued highly, while showing a disregard of the Masoretic tradition. De Rossi continued his work in *Variae Lectiones Veteris Testamenti*, 1784-7, and Jahn pub. an excellent abridgment (1806). K. was appointed Radcliffe librarian (1767) and canon of Christ Church, Oxford (1770).

**Kennington**, dist. and a parl. div. in the bor. of Lambeth, London. A royal palace existed here in medieval times. Much of the land belongs to the Duchy of Cornwall. K. Oval is the co. ground of the Surrey Co. Cricket Club.

**Kenny, Elizabeth** (1886-1952), Australian nurse, b. Warialda, New S. Wales. She qualified as a nurse in 1911 and worked among the children in the Australian Bush. After service with the army during the First World War she made a special study of infantile paralysis (poliomyelitis) which she considered was being incorrectly treated. She worked out a new method which was subsequently adopted in many parts of the world: maintenance of a bright mental outlook, encouragement of the patient to carry out movements (even when the muscles concerned were so completely paralysed that such movement was impossible), hydrotherapy and remedial exercises, maintenance of circulation, and the avoidance of

splinting and other forms of immobilisation. Details are given in her *Infantile Paralysis and Cerebral Diplegia*, 1927. Her method was the subject of controversy but despite an adverse report from a royal commission in Queensland in 1938, about 40 Kenny clinics were subsequently opened in various parts of the world. See her autobiography, *And They Shall Walk*, 1943.

**Kénogami**, adjoining tn to Jonquiére, 8 m. E. of Chicoutimi, in Quebec, Canada. The prin. industry is pulp and paper. Pop. 11,200.

**Kenora**, co. tn of K. and Patricia dists., Ontario, Canada, situated on the Lake of Woods. On the main line of the Canadian Pacific Railway and also on the Trans-Canada highway, 300 m. W. of Fort William. Being on the beautiful Lake of Woods it is the centre of a very popular, unspoilt summer resort, with good hunting and fishing. The tn has 2 cathedrals, sev. churches, 2 good hospitals, a public library, high and primary schools, and also 2 Indian residential schools. All public utilities are owned by the municipality. Industries include flour mills, lumber mill, pulp and paper, boat factory, and aerated waters. There is an important Ontario Gov. fish hatchery, and sev. wholesale fisheries. The vicinity supplies spruce, red and white pine, poplar, gold, silver, copper, and mica. The tn or settlement was discovered over 2 cents. ago by the famous Fr. explorer, Pierre de la Verendrye, and became known as Rat Portage. Pop. 9317.

**Kenosha**, port city, co. seat of K. co., Wisconsin, U.S.A., on Lake Michigan, 35 m. S. of Milwaukee. It manufs. motorcars, metal products, mattresses, and furniture. Pop. 54,400.

**Kensal Green**, dist. of NW. London, partly in the bor. of Kensington and partly in the bor. of Hammersmith. Its well-known cemetery contains the graves of many illustrious persons, including Thackeray, Cruikshank, and Trollope. In the Rom. Catholic cemetery adjoining (in the bor. of Hammersmith) Cardinal Wiseman and Francis Thompson are buried.

**Kensington**, parl. and metropolitan bor. in the W. of London, going back in hist. to a group of medieval manors and vills. obliterated except for a few names. It is a 'royal bor.' by the 1901 grant of Edward VII. Modern development began with the erection of Holland House (see HOLLAND PARK) and K. Palace (q.v.). K. became an area of great charm, to be somewhat altered when large museums and learned institutions (the Victoria and Albert Museum, Natural Hist. Museum, etc.) were constructed from about the mid 19th cent. onwards, at the same time as considerable numbers of terraces of large stuccoed houses. The W. part of K. gardens stands within the bor., which returns 2 members to Parliament. Area 2291 ac.; pop. 170,600. See Rachel Ferguson, *The Royal Borough*, 1950.

**Kensington Palace**, London, part of the Royal Household. It was formerly Nottingham House, the home of the 1st

Earl of Nottingham (see FINCH, HENEAGE), purchased in 1689 by William III, who had it remodelled by Wren, whose work survives mainly in the S. front and NE. wing. Under George I there was further reconstruction by Benson and Wm Kent (NE. and SE. wings). Among the more remarkable features are the Cupola Room by Benson (ceiling by Kent, marble relief over fireplace by Rysbrack), the Presence Chamber with ceiling by Kent and overmantel by Grinling Gibbons, the Orangery by Wren or Vanbrugh, and the Queen's Staircase. The building is entirely of red brick. The gardens were laid out c. 1725 in the Fr. grand manner. K. P. contains a collection of paintings. Mary II, William III, Queen Anne, and George II, the last sovereign to use the palace, all d. here. Queen Victoria and Queen Mary (consort of George V) were b. here, and the former here received the news of her accession. The London Museum (q.v.), formerly at Lancaster House, Green Park, was reopened here in 1951.

**Kensingtons**, The, popular name of the former 13th Co. of London Regiment, a T.A. regiment. It became the Army Phantom Signal Regiment in 1949.

**Kent, Edward Augustus**, Duke of (1767-1820), Eng. prince and soldier, fourth son of George III. He served under Grey against the French in the W. Indies (1794), became lieutenant-general (1796), Duke of K. and Strathern and Earl of Dublin (1799), and commander-in-chief in N. America. Fort Edward in Martinique and Prince Edward Is. were named after him. He was governor of Gibraltar (1802), but a mutiny followed his severe administration. In 1818 he married Victoria Mary Louisa (1786-1861), widow of the Prince of Leiningen, and their only child, the future Queen Victoria, was b. the following year.

**Kent, George Alexander Edmund**, Duke of (1902-42), Brit. prince, fourth son of George V. b. Sandringham. Entered navy, 1916; midshipman, 1921; lieutenant, 1926. He was appointed to H.M.S. *Nelson*, 1927, and to *Durban*, 1928, but in 1929 he retired from the navy for health reasons. He married Princess Marina, daughter of Prince Nicholas of Greece and Denmark, in 1934, and received title Duke of K. He was chancellor of the univ. of Wales from 1937. He was killed in an aeroplane crash in Scotland, whilst on a flight to Iceland to inspect Brit. forces there. His 3 children are Prince Edward George, b. 1935, succeeded to the title in 1942; Prince Michael, b. 1942; and Princess Alexandra Helen, b. 1936.

**Kent, James** (1763-1847), Amer. jurist, graduated at Yale in 1781. He lectured on law at Columbia College (1793-6; 1823-47), became judge of the supreme court of New York (1798), chief justice (1804), and chancellor (1814-23). His great work is *Commentaries on American Law* (1828-30). He also wrote *Dissertations*, 1795, and *A Course of English Reading*, 1831. See Johnson's *Chancery Reports* (7 vols.), 1816-24, which contain his judgments as chancellor; J. Story, *On*

*the Conflict of Laws*, 1834; J. Duer, *Discourse on the Life, Character, and Public Services of James Kent*, 1848; *The National Portrait Gallery of Distinguished Americans*, vol. II, 1852; W. Kent, *Memoirs and Letters of Chancellor Kent*, 1898.

**Kent, William** (11685-1748), architect, decorator, and landscape gardener, *b.* Bridlington. He is said to have been apprenticed to a coach-painter in Hull. He studied in Italy, 1709-10, at the expense of some wealthy patrons; and in Rome met Richard Boyle, 3rd Earl of Burlington, who brought him back to England and estab. him as a friend and collaborator at Burlington House, Piccadilly. With Burlington, K. carried out various architectural work (see BOYLE, RICHARD, 3rd EARL OF BURLINGTON).

He designed many important buildings, including Devonshire House, Piccadilly (demolished), the Royal Mews, Charing Cross (demolished), the Horse Guards, and part of the Treasury (all these in London), and the enormous mansion of Holkham, Norfolk. He laid out many notable gardens, and designed the State Barge, now in the Victoria and Albert Museum.

**Kent, William Charles Mark** (1823-1902), Eng. poet, biographer, and miscellaneous writer, *b.* London. He ed. the *Sun*, 1845-70, and the *Weekly Register*, 1874-81. He wrote under the pseudonym Mark Rochester, among his works being *Altheia*, 1850, *Poems*, 1870, *Mythological Dictionary*, 1870, *Corona Catholica*, 1880, and *Seven Wonders of the World*, 1890. K. also issued critiques, eds., or memoirs of Dickens, 1872, Burns, 1874, Lamb, 1875, Lytton, 1875, Father Prout, 1881, and others.

**Kent**, maritime co. in the SE., often referred to as 'the garden of England.' It includes the is. of Thanet and Sheppey, and sends 12 representatives to Parliament from the co., and 6 from the bors. K. is mostly in the diocese of Canterbury, whose archbishop is the Primate of All England. Maidstone is the cap., and other important tns are Chatham, Hythe, Rochester, Gravesend, Dover, Deal, Folkestone, Ramsgate, Margate. Chatham and Sheerness contain dockyards, Tunbridge Wells is a noted health resort. Four of the Cinque Ports—Dover, Romney, Sandwich, and Hythe—belong to K. Faversham is the centre of the fruit trade. The N. Downs runs from W. to E. through the co., ending in the white cliffs of Albion—Dover, Folkestone, and Hythe. Off the E. coast are the Goodwin Sands, between the N. and S. Foreland. Among the chief rvs. of K. are the Thames, Medway, Stour, Darent, and Rother. Romney Marsh, in which the Royal Military Canal was cut as a defence against Napoleon, is in the SW., and in the S. is the Weald, once densely wooded. Cereals and fruits are produced, and hops extensively cultivated. Cattle and sheep are reared and pastured. Oysters come from Whitstable and other parts. Manufs. include bricks, pottery, cement, paper, sacks, and gunpowder. There are many breweries, engineering works, and ship

building yards, and there is an oil refinery. The W. end of the co. lies within the London area, and many former Kentish tns are now little more than London suburbs. K. has a number of interesting architectural remains. Area 1525 sq. m.; p. 1,564,324. See J. Harris, *The story of Kent*, 1719; W. Lambarde, *A Perambulation of Kent* ('containing the description, hystorie, and customes of the shire'), 1570, 1826; J. R. Smith, *Bibliotheca Cantiana*, 1837; E. Hasted, *Historical and Topographical Survey of Kent*, 1886 (following original ed. of 1778-99); W. Jerrold, *Highways and Byways in Kent*, 1908; J. W. Horsley, *Place-names in Kent*, 1921; W. Page (editor), *The Victoria History of the Counties of England: Kent* (2 vols., 1908, 1926); R. Church, *Kent*, 1948; S. P. B. Mais, *The Land of the Cinque Ports*, 1949.

**Kent Breed**, see SHEEP.

**Kentigern** (or Mungo), St (c. 518-603), of Culross, Perthshire, reared in St Serf's (Servanus) monastery. The 'Apostle of the Strathclyde Britons,' he became Bishop of Glasgow c. 543. Driven from Scotland by Morken, he took refuge in Wales, founding the monastery of S. Asaph. Also he founded Glasgow Cathedral (St Mungo), and is Glasgow's patron saint. See Jocelyn of Furness, 'Vita Kentigerni' (c. 1180) in *Forbes's Historians of Scotland*, v, 1874.

**Kentish Dialect**, see ENGLISH LANGUAGE.

**Kentish Fire**, name of a peculiar form of applause at public dinners, or political meetings, produced by clapping the hands in unison in a certain rhythm (v-u-v). The effect is sometimes heightened by stamping, and a cry of 'rah' at intervals. It may mark approval or serve as an interruption. It probably originated in the Kentish meetings protesting against Rom. Catholic emancipation (1818-29), and has since been constantly used at Protestant, Conservative, or Orange meetings, especially in N. Ireland.

**Kentish Knock**, Battle of the. In this naval battle, fought 15 m. NE. of the N. Foreland, Adm. Robert Blake defeated the Dutch under De Witt and De Ruyter on 28 Sept. 1652.

**Kentish Rag**, local name applied to the calcareous sandstone occurring on the Kentish coast, in the Lower Greensand measures. It is a greyish-blue, and contains fossil sponges.

**Kentish Town**, dist. of London, in the bor. of St Pancras, originally a *tum*, or settlement of Kentishmen.

**Kentranthus**, family Valerianaceae, genus of European and Mediterranean herbs, of which *K. ruber*, the perennial Red Valerian, has naturalised in Britain. *K. macrosiphon* is a Sp. annual, grown in gardens. Sometimes incorrectly spelt *Centranthus*.

**Kent's Cavern**, or **Kent's Hole**, cave in a small wooded limestone hill near Torquay, Devon, England. It has yielded the bones of extinct or no longer indigenous animals, intermingled with implements of stone and bone. See R. Munro, *Prehistoric Problems*, 1897.



**Kentucky**, S. central state of the U.S.A., bounded on the N. by the Ohio R., separating it from Ohio and Indiana, SE. by Virginia, S. by Tennessee, W. by Illinois, and SW. by Missouri. It has a land area of 40,109 sq. m., and its greatest length is 425 m., breadth 180 m. In the E. and SE. it is mountainous, being traversed by ranges of the Allegheny system; but westward is the Bluegrass region (whence the name Bluegrass State), a beautiful and fertile tract noted for its stock-breeding and grazing capacity. K. is drained mainly by the tribs. of the Ohio R. It is 45 per cent wooded, and the prevailing species of trees are the blue ash, black walnut, tulip-tree, and sweet gum. Tobacco is the most valuable crop, closely followed by corn; hemp, maize, hay, potatoes, fruit of all kinds, cotton, and sorghum are also grown. The tobacco crop in 1951 was 444,084,000 lb., or over one-third of the total crop of the U.S.A. K. tobacco is mainly of the burley type used in the manuf. of chewing tobacco. The horses of K. have long been famous; mules, cattle, sheep, and pigs are also reared. Coal is the chief mineral mined, K. ranking third in production nationally, and next in importance are the iron ores. Petroleum is found, also natural gas and mineral springs. There are clay works and sandstone and limestone quarries; lead, natural cement, and asphalt are among the other minerals. Prin. industries are tobacco and agric. implements, pork packing and tanning, metal goods, textiles, lumber, and furniture. The climate is healthy, and on the whole temperate. K. is divided into 120 cos. Originally a part of Virginia, a settlement was made in 1775 by Daniel Boone, and the same year an effort was made to organise the ter. Admitted to the Union as a state, 1792. K. sends to Congress 2 senators and 8 representatives; the General Assembly consists of a Senate of 38 and a House of Representatives of 100, elected for 2 years. The chief cities are Louisville, 369,129; Covington, 64,450; Lexington, 55,534; Owensboro, 33,651; Paducah, 32,828; Ashland, 31,131; Newport, 31,044; Frankfort (cap.), 11,916. There is a state univ. at Lexington, and a univ. at Louisville. Transport facilities are good, K. being served by the great waterways of the Ohio and Mississippi; there are over 4140 m. (steam and electric) of railway. Pop. 2,944,806. See R. M. McElroy, *Kentucky in the Nation's History*, 1909; J. W. Townsend, *Kentucky in American Letters*, 1913; T. D. Clark, *History of Kentucky*, 1937.

**Kentucky River**, U.S.A., formed by the junction of the N. and Middle forks, rises in the Cumberland Mts and enters the Ohio after a N.-westerly course of about 250 m. It is navigable for its entire course by means of locks. Part of its course is through a deep chasm in the limestone.

**Kenturk**, mkt tn in NW. co. Cork, Rep. of Ireland, with important dairying centre; also manufs. hosiery. It has a 16th-cent. castle, vested in the Irish National Trust. Pop. 1630.

**Kentville**, tn of Nova Scotia, Canada, cap. of Kings co. It is the railway and commercial centre for a rich farming and fruit area, and has canning factories. Site of Nova Scotia Sanatorium. Pop. 4240.

**Kenya**, Mount, extinct volcano which gives its name to a Brit. ter. in E. Africa; situated between 10° and 12° S. of the equator. Called by the Kikuyu 'Kilinyaga,' and by the Masai 'Doonyo Egeré' ('grey' or 'spotted mountain'). It is a huge truncated pyramid, about 30 m. in diameter at the base, supporting a precipitous rocky pinnacle, divided from its summit by a deep cleft, thus making in effect 2 peaks, 17,058 ft and 17,160 ft high and covered with perpetual snow.

**Kenya Colony and Protectorate**, ter. formerly known as the E. African Protectorate (see BRITISH EAST AFRICA). It includes the coastline from the Umba R. to Dick's Head, together with vast ters. in the interior bounded in part by international convention lines. Like Uganda, K. was practically unknown up to the beginning of the present cent.; Uganda, however, had been visited and described by Stanley, Burton, and Speke, but the ter. which is to-day the colony of K. was shut off from easy communication with the coast by a waterless desert, and the greater part was overrun by the warlike tribesmen, the Masai. K. is bounded on the N. by Ethiopia; on the E. by Jubaland (as to the agreement with Italy see BRITISH EAST AFRICA); on the W. by Uganda; on the S. by Tanganyika. The K. Protectorate consists of the mainland dominions of the Sultan of Zanzibar, extending 10 m. inland along the coast from Tanganyika to Kipini. For these ters. K. has hitherto paid the sultan a rent of £10,000 a year. By the K. Annexation Order in Council, 1920, the ters. outside the mainland dominions of the Sultan of Zanzibar were recognised as a colony, known as K. C., while the sultan's ters. are known as K. Protectorate. Area of protectorate and colony, 224,960 sq. m., including 5230 sq. m. of inland water. A scheme of administration providing for the separate control of the African and settled areas came into operation in 1921. The cap. is Nairobi, and the prin. port Mombasa (q.v.). Other ports are Kisumu (q.v.) on Lake Victoria and the seaport of Malindi (q.v.).

**Divisions and physical features.** The provs. and dists. of K. are: (1) *Northern*: Turkana, Marsabit, Moyale, Mandero, Wazir, Garissa, Isiollo; (2) *Rift Valley*: W. Suk, Trans-Nzola, Uasin Gishu, Nandi, Elgeyo-Marakwet, Baringo, Samburu, Laikipia, Nakuru; (3) *Nyanza*: N. Nyanza, Central Nyanza, S. Nyanza, Kericho; (4) *Southern*: Narok, Kajiado, Machakos, Kitui; (5) *Coast*: Taita, Kwale, Kilifi, Tana R., Lomu; (6) *Central*: Nanyuki, Nyeni, Fort Hall, Kiambu, Thika, Embu, Meru; and also the extra-prov. dist. of Nairobi. The country is watered by the Upper Nile, Bahr-el-Ghazal, and Tana R.s, and forms a high plateau. Much of the vast region consists of pasture lands on which very large herds are grazed, or of

barren wastes. There are also, however, dists. of great actual and potential fertility both in the interior and on the coast. The coastal regions have a tropical climate with cool nights, except during the hottest months (Dec. to April). The climate in the highlands is invigorating, with cool breezes, and considerable areas in the Central and Rift Valley Provs. are reserved for settlement by Europeans. The mean maximum shade temp. at Nairobi is about 80° and the mean minimum 54°. The rainfall is under 20 in. in the N. Desert area; from 40 to 80 in. on the coast and in the Nyanza and Kikuyu Provs.; and from 20 to 40 in. in the remainder of the country.

Hig game is abundant, the colony being a veritable hunter's paradise. The largest pair of elephant's tusks on record were taken from K., and more lions have been shot annually for the past 20 years in K. than anywhere else, yet they are as numerous in certain outlying parts as ever. The record buffalo also was shot in the colony, and herds are so large that no fewer than 6 bulls are permitted under the Game Laws. Other game are hippopotamus, eland, oryx, wildebeeste, and giraffe. Leopard, hyaena, wild dog, and jackal, all common, are regarded as vermin. Ant-bear, aardwolf, gnanhog, and various cats such as lynx and cervel are plentiful. The bird life is remarkably varied and prolific, including numerous kinds of duck and geese, snipe, bustard, quail, guinea fowls, francolin, sand grouse, pigeon, whistling teal, diving duck, garganey, pintail, and pochard; and, in addition to game-birds, there are ostrich, crane, heron, secretary bird, hornbill, whiddah (whiddah), the sunbird of gorgeous plumage, bee-eater, hawk, and starling. The best shooting grounds are either in the N., in the direction of Ethiopia, on lakes Baringo, Hannington, and Rudolph, and on the R.s Tana and N. Usao Nyiro; or S., towards Tanganyika. There is plentiful fishing, either for deep-sea fish like tarpon, Nile perch in the lakes, or brown trout in the mt streams. Entomologists, too, have ample scope for their activities, the insect life including butterflies of astonishing size, colour, and shape, chameleon flies, and mantis, beetles, and other remarkable mimetic insects. Nairobi is the best starting point for the sportsman, and all kinds of outfit, provisions, etc., can be bought there, including any kind of firearm. The Royal National Parks and National Game Reserves of K. provide a rare opportunity for observing big and small game in their actual habitat. The Nairobi National Park is less than 5 m. from the cap. The largest of the national parks, Tsavo, is 7000 sq. m. in area.

**Population.** The pop. of K. was roughly estimated at mid 1955 as follows: African, 5,815,000; Indian, Pakistani, and Goan, 144,000; European, 52,000; Arab, 32,000; others, 5000; grand total, 6,048,000. The encouragement of European settlement in K. was largely due to the desire to establish in the vicinity of

the railway line a pop. that would provide sufficient traffic for the line to repay the heavy outlay on its construction, the railway itself having been built primarily as a means of communication with Uganda. At 31 Dec. 1955 some 13,000 sq. m. of land had been alienated to European (mostly Brit. and S. African) settlers, or were available for alienation, within an area in the highlands of the Central and Rift Valley provs. specifically reserved for such settlement. No freeholds have been granted since 1915. Areas reserved for occupation by Africans, including African settlement areas, totalled 52,000 sq. m.; these do not include the 115,000 sq. m. of the N. Frontier and Turkana, which are largely arid semi-desert.

The introduction of Brit. administration in K. was followed by a considerable influx of immigrants from India. Indians had long lived and traded on the E. African coast, and when the building of the railway was started in 1895 Indian labour was brought in for its construction. In all 35,000 Indians were employed and many of them, with their families, remained as small traders and did much to open up trade with Africans in the interior. Indian immigration has continued steadily to the point where Indians, Pakistanis, and Goans form the second largest community. The Arab pop. is long-established but mainly confined to the coastal lands.

The presence of these various communities, with sharply contrasting modes of life and at widely differing stages of development, naturally carries with it the elements of inter-communal tension, accentuated as the growth of the African pop. creates pressure on agric. land. The grant of the franchise to Europeans in 1919 created a demand for equal privileges by the Indians, which the Europeans bitterly opposed. The Devonshire White Paper of 1923 granted the Indians representation in the legislature on a communal basis, providing also for an Arab elected member and a nominated member to represent African interests. The paper confirmed the special position of the European settlers in the highlands but declared that K. was primarily an African country and that African interests must be paramount in case of conflict. In 1934 a commission under Sir Morris Carter re-examined land questions and certain areas were added to the African reserves under the Native Lands Trust Board. In 1952 extreme elements of the Kikuyu, Embu, and Meru tribes launched the anti-European movement called Mau Mau and began a number of brutal attacks against Europeans and loyal Africans alike. A state of emergency was declared and vigorous action taken against the terrorists, and the revolt, which was confined to a small part of the colony, was virtually ended by 1957. The King's African Rifles (q.v.) played an active part in the suppression of violence and the re-establishment of law and order.

**Administration.** The emergency was

not allowed to halt political progress, which had for some time been moving in the direction of multi-racial representative gov., which was declared to be the aim. The constitution of 1954—the 'Lyttleton Constitution'—provided for a legislative council comprising the governor as president, a vice-president who was speaker, 8 *ex officio* and 18 nominated members, 1 Arab, 6 Asian, and 14 European elected members, 6 African representative members, and 1 Arab representative member. This constitution was declared unworkable in 1957. The present Council of Ministers, together with the Governor's Arab adviser, is the prin. instrument of gov. The council contains 6 officials and 2 other members (these may be officials or unofficial persons), and a further 8 members—4 European, 2 Asian, and 2 African—appointed from among the representative members of the legislative council. There were also 1 Asian, 1 Arab, and 3 African parl. secretaries. In 1957 the African representative members were for the first time chosen at a general election, on a system of plural votes awarded in accordance with certain specified qualifications (see H.M.S.O., Cmd. 309).

Local gov. in the non-African areas is in the hands of municipal authorities in the urban areas and co. and dist. councils in rural areas. Responsibility for prov. and dist. administration in the African areas devolves on the prov. administration under the guidance of the minister for African affairs. There are 24 African dist. councils, bodies corporate with wide powers. At a lower level are locational councils, which may be compared with par. councils.

See E. Huxley, *Lord Delamere and the Making of Kenya*, 1935, and *The Sorcerer's Apprentice*, 1948; N. Farson, *Last Chance in Africa*, 1949; M. Perham and E. Huxley, *Race and Politics in Kenya* (revised ed.), 1957; Lord Hailey, *An African Survey* (revised ed.), 1957; also the *Reports of the K. Land Commission*, Cmd. 4556, 1934, and of the E. Africa Royal Commission, Cmd. 9475, 1953-5.

*African tribes of Kenya.* The African peoples of K. are divided into a great number of tribes, some large, some numbering only a few hundred. The largest tribe is the Kikuyu (q.v.), which with over 1 million members accounts for a fifth of the African pop. The Kikuyu tribe originated in the Central Prov. but has emigrated widely throughout E. Africa. Second in size is the Luo tribe, 760,000 strong, dwelling in the Nyanza Prov. The Baluhya of N. Nyanza are 650,000 strong, the Kamba of the S. Prov. over 600,000. The tribes of K. are of various origins and arrived there as the result of a series of emigrations: some are Bantu, some Hamitic, some Nilotic. Among the most picturesque, though not the most numerous, are the nomad Hamitic Masai, a cattle-owning tribe once renowned as warriors, who formerly dominated a great part of SW. K.; other Hamitic tribes, the Kipsigis, Nandi, and Suk, are beginning to settle and practise agriculture.

The practice of magic for both beneficial and harmful purposes is common to African tribes. It is generally believed that the ritual treatment of certain substances by persons possessed of special powers can affect human beings, animals, or crops in a manner which is recognised to be outside the ordinary course of nature; thus magic to produce courage in war may include portions of a lion among its ingredients, and in many tribes the fertility of the soil is held to be directly influenced by the sexual life of the chief. Only harmful magic can approximately be called sorcery, and this is universally



E.N.A.

MASAI WOMAN OF KENYA

regarded by Africans themselves as a heinous crime. The witch doctors derive their power from the belief that by divination and other means they are able to indicate sorcerers and protect the tribe and individuals against the practice of harmful magic. See A. C. Hollis, *The Masai: their Language and Folklore*, 1905, and *The Nandi: their Language and Folklore*, 1909; C. W. Hobley, *Ethnology of the A-Kamba, and other East African Tribes*, 1910, and *Bantu Beliefs and Magic*, 1922 (refers also to the Kikuyu); W. M. H. Beech, *The Suk*, 1911; G. Lindblom, *The Akamba in British East Africa*, 1920; G. St J. Orde Browne, *The Vanishing Tribes of Kenya*, 1925 (deals with the minor tribes of the Kikuyu dist.); J. A. Massam, *The Cliff Dwellers of Kenya*, 1927 (refers to the Elgeyo tribe); J. G. Peristiany, *Social Institutions of the Kipsigis*, 1939.

*Agricultural and other products.* The main crops and products are sisal, coffee, tea, wattle extract, cotton, maize, wheat, and pyrethrum. In addition the African peasant cultivators produce millets, grains, and pulses, some of which yield an exportable surplus. Beef production, dairying, sheep, pigs, and poultry are

important in the economy, and hides and skins provide a valuable export. The forests produce podocarpus and pencil cedar, camphor, and E. African olive. Soda ash, mainly from Lake Magadi, is the prin. mineral export; others are salt, mullite, gold, limestones, diatomite, and graphite. Considerable damage to agric. land has been caused by soil erosion, the result of unscientific cultivation, especially on sloping land. Included in K.'s £22 million development plan is a plan for the intensified development of African agriculture—the 'Swynnerton Plan'—under which it was planned to spend £6,745,000 in the period 1954-8, on measures including soil conservation, water supply, clearance of tsetse-fly from infested areas, and planned resettlement.

**Trade and revenue.** Under the Congo Basin treaties equality of treatment in respect of imported goods irrespective of origin is ensured, and the grant of imperial preference is therefore inadmissible. For purposes of customs K. and Uganda form a single unit, and by agreement with the Tanganyika Gov. a common tariff has been accepted by the 3 dependencies, thereby securing free movement within these terr. of both imported goods and local products. The prin. exports in 1955 were coffee (£8,905,000), tea (£2,761,000), wattle extract (£2,261,000), sisal (£1,959,000), maize (£1,665,000), hides and skins (£1,302,000), and soda ash (£1,277,000). Figures of external trade for recent years, including bullion and specie and excluding all inter-territorial trade with Uganda and Tanganyika, are:

	Net Imports £ (thousands)	Exports and Re-exports £ (thousands)
1938	5,229	3,989
1950	34,078	20,736
1953	51,718	22,896
1954	60,329	22,769

In 1955 the main imports into K. and Uganda were iron and steel manufs., other base metal manufs., industrial and commercial machinery, road and rail vehicles and other transport equipment, electrical equipment, motor and other fuels, rubber tyres, cotton fabrics (piece goods), blankets and travelling rugs. The U.K. sent 44.3 per cent of these imports, other Brit. Commonwealth countries and foreign countries 55.7 per cent.

Revenue and expenditure for 1938, 1952-3, and 1954-5 were as follows:

Year	Revenue £	Expenditure £
1938	3,776,030	3,876,952
1952	20,548,149	18,858,621
1953	21,351,865	22,853,430
1954-5	35,000,848	38,930,039

In 1954 the financial year was changed to run from 1 July to 30 June. Public debt at 30 June 1954 was £23,064,740.

**Communications.** The K. and Uganda Railway, since 1 May 1948, has been amalgamated with the Tanganyika Railways to form the E. African Railways and Harbours (see EAST AFRICAN RAILWAYS).

See N. Leys, *Kenya*, 1924, and *A Last Chance in Kenya*, 1931; W. MacGregor Ross, *Kenya from Within*, 1927; C. W. Hobley, *Kenya: From Chartered Company to Crown Colony*, 1929; H. O. Weller, *Kenya without Prejudice*, 1931; L. S. B. Leakey, *Kenya Contrasts and Problems*, 1936, and *Mau Mau and the Kikuyu*, 1952; K. Gandar Dower, *The Spotted Lion*, 1937; Sir F. J. Jackson, *The Birds of Kenya Colony and the Uganda Protectorate*, 1938; Lord Cranworth, *Kenya Chronicles*, 1939; E. M. Wiseman, *Kenya—Then and Now*, 1948.

**Kenyon, Sir Frederic George** (1863-1952), Director and Prin. Librarian of Brit. Museum; noted antiquary, and skilled in study of papyri and numismatics. Was elected president of the Brit. Academy, 1917; in 1918 prof. of anc. hist. at the Royal Academy; in 1934 president of the Society of Antiquaries. He also served as president or on the committee of a number of other learned bodies and societies and was the recipient of many honours. Among his numerous publs. are *Classical Texts from Papyri in the British Museum*, 1841, *Facsimiles of Biblical MSS. in the British Museum*, 1900, *Handbook to the Textual Criticism of the New Testament*, 1901 (new ed., 1912), *The Buildings of the British Museum*, 1914, *Ancient Books and Modern Discoveries*, 1928, *Libraries and Museums*, 1930, *The Bible and Archaeology*, 1940, *The Chester Beatty Biblical Papyri* (8 parts), 1933-41, *The Reading of the Bible*, 1944, and *The Bible and Modern Scholarship*, 1948.

**Kenyon, Lloyd, Lord** (1732-1802), lawyer, lord chief justice of England (1788-1802). He won fame by his defence of Lord George Gordon, on trial for treason over the outbreak opposing toleration of Rom. Catholics (1779). K. became attorney-general in 1782, and received the title Lord K., Baron Gredington (1788). See J. C. Campbell, *Lives of the Chief Justices*, 1849-57, and *Lives of the Lord Chancellors*, 1845-69; also life by G. T. Kenyon, 1873.

**Keokuk**, city of Iowa and port on the Mississippi R. where the K. Dam (53 ft high, 4649 ft long, with hydro-electric plant, dry docks, and navigation lock) since 1913 has formed Lake K., covering the old Des Moines Rapids and reaching 32 m. to Burlington. K. manufs. food and metal and wood products, calcium carbide, blasting powder, and shoes. Here the Des Moines R., separating Iowa from Missouri, flows into the Mississippi. Pop. 16,100.

**Kephallenia**, see CEPHALONIA.

**Keppler, or Keppler, Johannes** (1571-1630), Ger. mathematician and astronomer. b. Weil der Stadt. His parents, though of noble descent, were in reduced

circumstances, and while K. was a child his father became innkeeper at Eimendingen. In 1586 K. was admitted into the monastic school at Maulbronn, where the cost of his education was defrayed by the Duke of Württemberg, and from there he passed to Tübingen Univ. He had originally intended to prepare for the ministry of the Evangelical Lutheran Church, but c. 1594 he accepted the astronomical lectureship in the univ. of Grätz (now Graz). His own modest assurances that at that period he had given no particular attention to astronomy are misleading; in his mathematical studies he had been well grounded in the subject, had learned Copernican principles from Moestlin, his famous tutor at Tübingen, and had been praised by Moestlin for his essay on primary motion. In 1596 his *Prodromus dissertationum cosmographicarum seu mysterium cosmographicum* was pub. and won him the friendship of Tycho Brahe and Galileo (qq.v.). He married in 1597, and in 1600 he became assistant to Tycho Brahe. On the latter's death in the following year he succeeded him as prin. imperial mathematician to Rudolph II, and was given the task of completing the *Rudolphine Tables* (1622), left unfinished by Brahe. He was now able to devote much of his time to astronomical research. Rudolph had a far greater interest in astrology than in astronomy, and K., like Brahe, was of great value to him and to his successor, Matthias, because of his knowledge of the casting of nativities. K. himself attested his faith in the subject, and one of his pubs. which brought him fame during his lifetime was an astrological one, *De fundamentis astrologiae*, 1602. After Rudolph's death K. remained in favour and continued his astronomical research. His wife d. in 1611, and he remarried in 1614. In 1619 he pub. *De harmonia mundi*, dedicated to James I of England, on which Newton later began his studies for the *Principia*. James invited him to England, but, though in constant poverty at a court which rarely paid him his salary, K. refused the invitation. About 1629 he became astrologer to Wallenstein. At his death he had pub. 33 works; he left 22 vols. in MS. and a voluminous correspondence. K.'s prin. claim to immortality lies in his discovery of the 3 celebrated laws of planetary motion which bear his name. These laws, though not proved till Newton's *Principia* appeared, revolutionised astronomical calculations, and entitle K. to rank as one of the 4 great men who laid the foundations of modern astronomy. For an account of K.'s laws see ASTRONOMY and GRAVITATION. There are eds. of his collected works by C. Frisch, 1858-72, and W. von Dyk and M. Caspar, 1937 ff. See also lives by Sir D. Brewster, 1841; C. G. Reuschle, 1871; H. W. Bryant, 1921; F. E. Brasch and others, 1931, and a useful study by E. Zinner, 1934; also H. Macpherson, *Makers of Astronomy*, 1933; M. Caspar, *Johann Keplers wissenschaftliche und philosophische Stellung*, 1935 and Biblio-

*graphica Kepleriana*, 1936; K. Hildebrandt, *Kopernicks und Kepler*, 1944; Carola Baumgardt, *Johannes Kepler, Life and Letters*, 1951.

**Keppel, Augustus, Viscount** (1725-86), Eng. admiral, son of the 2nd Earl of Albemarle. After having entered the navy he was successful in many expeditions, among them the capture of Havana in 1762. He was a Whig sympathiser and believed that the Tory gov. would be glad to see his failure in action. In 1778 he allowed the Fr. fleet to escape off Ushant. At the subsequent court martial K. made charges of neglect of duty against Sir Hugh Palliser (q.v.), his subordinate, which were declared malicious and ill-founded. He was, however, acquitted. In 1782 he was made First Lord of the Admiralty, and created a viscount. See life by T. Keppel, 1842.

**Keppel, Sir Henry** (1809-1904), Eng. admiral and writer, son of the 4th Earl of Albemarle. After service in other places he was instrumental in putting down piracy off the shores of China and in the Pacific about the middle of the 19th cent. He was in command of the naval brigade at Sevastopol, and in 1857 was successful against the Chinese in Fatsan Bay. In 1869 he was made a full admiral; G.C.B. in 1871, and in 1877 admiral of the fleet. His writings include *Visit to the Indian Archipelago*, 1853, and *A Sailor's Life under Four Sovereigns*, 1899. See Sir A. West, *Memoir of Keppel*, 1905.

**Ker, Family** of, surname of 2 noble families of Anglo-Norman extraction, said to have been living in Scotland at the end of the 12th cent. They settled in Roxburghshire, and derived their descent from the families of Fernihirst and Cessford. In 1357 John K. of Altonburn gave origin in his 3 sons to the families of Linton, Cessford, and Gateshaw, and in a grandson to that of Fernihirst—the Marquess of Lothian being the present chief male representative of this family. Sir Walter K., son of Sir Andrew K. of Cessford, was created Earl of Roxburgh in 1616. The grandson of the 2nd Earl of Roxburgh, viz. the 5th earl, was created duke in 1707, and the present Duke of Roxburgh is the chief male representative of the family of Cessford.

**Ker, Robert**, see SOMERSET, EARL OF.  
**Ker, William Paton** (1855-1923), scholar, b. Glasgow. Educ. at Glasgow Academy and University and Balliol College, Oxford, he became a fellow of All Souls in 1879. In 1883 he was appointed prof. of English and hist. at Cardiff, and in 1889 moved to the Quain Chair of English at Univ. College, London. In 1920 he became prof. of poetry at Oxford. He was one of the greatest authorities on medieval literature, his chief works being *Epic and Romance*, 1897, *The Dark Ages*, 1904, *The Art of Poetry*, 1920, *Essays on Medieval Literature*, 1923, *English Literature: Medieval*, 1924, and *Form and Style in Poetry*, 1928, a collection of lectures and notes ed. by R. W. Chambers. See J. and F. McCunn, *Recollections of William Paton Ker*, 1924.

**Kerala**, state of India along the SW. coast, bounded on N. by Mysore and on E. by Madras. It consists of an alluvial coastal plain and a hilly hinterland (part of W. Ghats) which cuts it off from the rest of India. It has a truly tropical climate, temps. seldom going outside the range of 70-90° F., and a heavy rainfall. The coastal backwaters and lagoons, linked by canals, give it great beauty besides being useful as means of transport.

**History.** K. is cut off from India and has been out of the main stream of Indian hist. Though settled from the earliest times, and linked by sea with the W. from Phoenician days, K. was never part of the great empires of Hindustan. The great S. dynasties of Cheras (whence 'Kerala') and Pandyas ruled here. It was part of Vijayanagar, and later part of it was under Bijapur and Mysore kingdoms. Vasco da Gama landed at Calicut and Cochlin saw the first European settlement in India (by the Portuguese). The local dynasties of Cochlin and Travancore retained their kingdoms, though the Zamorins of Calicut lost theirs; the former both acceded to independent India in 1947, and were fused into one state in 1949. In 1956 the addition of Malabar dist. of Madras state made all K., the land of the Malayalis, one state.

**Development.** Rice and coco-nuts are the main crops; tapioca, sweet potatoes, ground-nuts, and spices are also produced. Plantation crops; are rubber, tea, and coffee—mainly in the hills. Mineral resources are white clay (used in ceramics), lignite, and, of modern strategic interest, the ilmenite, monazite, and zircon sands of the beaches with a big radio-active thorium content. Fisheries, rich in prawns and sardines, will be of increasing importance. K. has many cottage industries connected with the coco-nut palm. Modern industries include rubber, textiles, fertilisers, oil soap, and cement.

**Culture.** Ethnographically K. is most interesting. Its Hindus carried orthodoxy to absurd extremes. Its 'untouchables' were actually unapproachable and 'un-seecable' by the high caste Nambudri Brahmins without pollution of the latter. The Nambudris are less educ. than most other Brahmins of India; their marriage customs tend to their extinction. The leaders in progress are the Nairs, with an interesting matriarchal system of inheritance, considerable freedom for their women, and a martial tradition. The Syrian Christians, in places 30 per cent of the pop., antedate any European mission in their origin; Cochlin has anct communities of Black and White Jews; and the Muslim Moplahs are said to date back to the settlement of Arab sailors. Malayalam is the language—it is linked with Tamil.

K. has the highest literacy in India (over 50 per cent where India's average is 13 per cent). The univ. with H.Q. at Trivandrum has over 40 affiliated and constituent colleges. Educ. unemployment has been a big problem.

**Government.** The governor acts through

ministers responsible to a legislative assembly of 126. K. is the only Indian state with a sizeable Communist party in its legislature, and in 1956 this party won control of the assembly at the general elections. In India's Parliament K. has 9 seats in the Upper and 18 in the Lower House.

The cap. is Trivandrum (pop. 187,000), former cap. of Travancore. Other tns are Calicut (pop. 159,000), famed for calico; Alleppey (pop. 116,000); Trichur (pop. 58,000); and Ernakulam (pop. 47,000). With an area of 15,035 sq. m. and a pop. of 13.5 million, K. is the most densely populated state of India.

*See also* COCHIN; MALABAR; TRAVANCORE.

**Kerbela**, sacred tn of Iraq, about 60 m. SW. of Bagdad, connected with the Euphrates by a canal. Here is the tomb of Hussein, son of Ali, the goal of numbers of pilgrims. The people are engaged in making sacred bricks, and the chief exports are cereals and dates. Pop. (liwa) 276,670; (tn) 72,000.

**Keroh'** (anct Panticapæum), tn on the K. Peninsula in E. Crimea. It is an important industrial and transportation centre, with an iron and steel industry (since 1846), shipbuilding, and fisheries; it is a seaport, with a train ferry to the Caucasus. There are many anct monuments, and an archaeological museum (founded 1826). K. was founded by Greeks in the 6th cent. BC; from the 5th cent. BC to the 4th cent. AD it was cap. of Bosphor Kingdom (q.v.), then in turn Byzantine, Tatar, and Turkish; since 1774 it has been Russian. It was destroyed in the Crimean War and in 1941-3. Pop. (1956) 95,000 (1926, 36,000; 1939, 104,000).

**Keren**, plateau and tn in Eritrea, Federation of Ethiopia and Eritrea, of strategic value since it covers Asmara, and the railway from Sudan to the coast. In the Second World War, its positions therein were captured after heavy fighting between 21 and 27 Mar. 1941.

**Keren Hayesod**, *see* ZIONISM.

**Kerenskiy**, **Aleksandr Fëdorovich** (1881- ), Russian politician, b. Simbirsk, son of a headmaster. He studied law at St Petersburg Univ., and practised in Saratov. He achieved popularity by his eloquent defence in political cases, and in 1912 was elected to the fourth Duma (*see* DUMA), where he became leader of the Labour group (a group of moderately Socialist peasant members); later he joined the party of Socialist Revolutionaries (q.v.). At the beginning of the revolution in 1917 he became deputy chairman of the St Petersburg Soviet of Workers' Deputies (*see* SOVIETS) and minister of justice in the Provisional Gov. (q.v.). In May he became minister of war and navy, in July Prime Minister, in Sept., after the Kornilov affair (*see* KORNILOV), also supreme commander-in-chief. The policy of the democratically minded provisional coalition govs. headed by K. was to continue the war and to defer major reforms until the convocation of the

Constituent Assembly. This enabled the Bolsheviks (q.v.), together with their allies the Anarchists and the Left Socialist Revolutionaries, to exploit the war-weariness and the impatience of the politically immature Russian masses and to seize power. K. emigrated and lived in Paris, where he pub. a left-wing Russian paper *Dni (The Days)*; since 1940 K. has lived in the U.S.A. See his *The Crucifixion of Liberty*, 1933, and *The Road to Tragedy*, 1935; also W. H. Chamberlin, *The Russian Revolution*, vol. 1, New York, 1935.

**Kerguelen Islands**, Fr. is. in the SE. of the Indian Ocean, 38°-50° S. lat. and 70°-80° E. long. They are mountainous and volcanic, and are used as a scientific research base and administrative H.Q. The is. include St Paul, New Amsterdam (lat. 38°), which has a fishing industry and an important radio station, and Crozet Is. (lat. 46°), which are uninhabited. A characteristic feature of the vegetation is the Kerguelen cabbage (*Pringlea antiocticola*), a member of the order Cruciferae and a preventative of scurvy. The is. were discovered by Yves Joseph de Kerguelen-Trémarec (1745-97) in 1772 and annexed by the French in 1893. Area 1480 sq. m.

**Keriya**, or **Kirja**, tn in Sinkiang, China, situated 95 m. E. by S. of Khotan, and standing at a height of 4500 ft. Jade is found. Pop. 13,000.

**Kerkraade**, tn in the prov. of Limburg, Netherlands, 15 m. ENE. of Maastricht, near the Ger. border. It is the centre of a coal-mining region. Pop. 46,140.

**Kerkuk**, see **KIRKUK**.

**Kerkyra**, see **CORFU**.

**Kermadec Islands**, group of uninhabited volcanic is. of the Pacific Ocean, lat. 30° S. and long. 178° 30' W., one of the chief being Sunday or Raoul Is. (20 m. in circuit). They belong to New Zealand. Area 15 sq. m.

**Kerman**, or **Kirman**: 1. Prov. in the SE. of Persia, bounded on the N. by Khorasan, the E. by Baluchistan, the W. by Yazd, and the S. by Mekran, and having an area of about 85,000 sq. m. Most of the surface is barren, especially in the N. and NE. The inhab. are chiefly engaged in agriculture, and carpet-making is the most important local industry. Pop. about 600,000.

2. Cap. of the prov. of the same name, stands at an elevation of over 5000 ft. A centre of the Persian carpet industry. It has a spinning factory and wool-carding plants. It has a small Zoroastrian community. Pop. 62,000.

**Kermanshah**, tn of Persia, 275 m. WSW. of Tehran, and standing at the junction of the caravan routes from Bagdad, Tehran, and Isfahan. It has a small oil-refinery, which is connected by pipe-line to Naft-i Shah. It is the centre of a large grain-growing area. Pop. 125,000.

**Kermanshahan**, dist. of W. Persia, bounded on the N. and W. by Sanandaj, on the NE. by Asadabad, on the S. by Shahabad, on the E. by Nehavand and Tuysarkan, and on the SE. by Khorrama-

bad. It is a fertile grain-producing area. Pop. 300,000.

**Kermes**, see **ADELGES**.

**Kern, Jerome** (1885-1945), Amer. composer, b. New York. He studied under Paolo Gallico and Alexander Lambert, and turned to the composition of musical comedy and other light music. His works include *Sunny*, 1925, *Show Boat*, 1927, *Music in the Air*, 1933, and others. He also wrote music for films.

**Kernahan, John Coulson** (1858-1943), author, b. Itracombe, Devon. Educ. privately by his father, Dr James K., F.C.S., and at St Albans, he collaborated with F. Locker-Lampson in editing the anthology *Lyra Elegantiarum*, and was until 1905 literary adviser to Ward, Lock & Co. His works include *A Dead Man's Diary*, 1890, *God and the Ant*, 1895, *Captain Shannon*, 1901, *Scoundrels & Co.*, 1901, *In Good Company*, 1917, *Spiritualism*, 1919, *Black Objects*, 1920, *Six Famous Living Poets*, 1922, *The Reading Girl*, 1925, *Five More Famous Poets*, 1928, *A Dog and his Master*, 1932, and *Chatter about Dogs*, 1936.

**Kerner, Justinus Andreas Christian** (1786-1862), Ger. poet, b. Ludwigsburg in Württemberg. He studied medicine at the univ. of Tübingen, took his doctor's degree in 1808, and practised in Wildbad. In 1815 he was made medical officer of Guldorf, and in 1818 of Weinsberg, where he spent the rest of his life. His works include *Die Reiseschatten von dem Schattenspieler Luchs*, 1811, *Deutscher Dichtervall*, 1813, *Der letzte Blütenstrauß*, 1852, *Winterblüten*, 1859. In later life he became interested in occultism, and wrote the novel *Die Seherin von Prevorst*, 1829. See F. Heinzmann, *Justinus Kerner als Romantiker*, 1908, and H. Straumann, *Justinus Kerner und der Okkultismus*, 1928.

**Kerosine** (Gk *kēros*, wax), colourless mixture of liquid hydrocarbons distilled (between 150° and 300° very approximately) from petroleum. The sp. gr. varies from .780 to .825, the boiling range is about 140°-300° C., the flash point varying accordingly. In England it is often known as paraffin or paraffin oil. It is a colourless liquid, with a characteristic smell and a blue fluorescence. The composition of K. varies according to the purpose for which it is intended. It has long been used as an illuminant and domestic heating fuel, and the spirit prepared for these purposes tends to exclude all but the paraffin hydrocarbons, since the aromatic and naphthenic hydrocarbons form smoke readily. In the same way a low sulphur content is desirable. When it is used as fuel for low-compression spark-ignition engines (as in tractors and some small boats) in the form of vaporising oil a wider range of hydrocarbons is possible. The third major use of K. is as fuel for gas turbine engines in jet aircraft. Here a high calorific value is important, while hydrocarbons tending to become viscous at the low temps. encountered at high altitudes have to be eliminated. K. has also numerous uses as a solvent.

**Kérroualle, Louise Renée de**, see PORTSMOUTH AND AUBIGNY, DUCHESS OF.

**Kerr, Orpheus C.**, see NEWELL, R. H.

**Kerr, P. H.**, see LOTHIAN, MARQUESS OF.

**Kerria**, monotypic genus, family Rosaceae; *K. japonica*, Jew's Mallow, of China and Japan, being a popular wall shrub in gardens, especially variety *flore pleno*, with double flowers.

**Kerry**, maritime co. of Munster, SW. Rep. of Ireland. The coastline is deeply indented with bays and harbours, such as Tralee, Dingle, Kenmare, and Bantry. The surface is very mountainous, containing the Macgillcuddy Reeks (highest range in Ireland) with Carruntuohill (3410 ft), Brandon and Mangerton, Slieve Mish, and Cahla Mts. The famous Killarney lakes are in this co. The rivers are short and of little importance. Among the islands off the coast are the Skelligs, Blaskets, and Valentia, where slates and flagstones are quarried. The chief towns are Tralee (cap.), Killarney, Listowel, Dingle, Cahirciveen, and Castleisland. Oats and butter are exported, and potato-growing and fisheries are extensive. Rebellions in Elizabeth's reign destroyed much of the co.'s former prosperity. Area 1,161,708 ac.; pop. 140,000. See R. Hayward, *In the Kingdom of Kerry*, 1946.

**Kerry**, Ring of, famous coastal strip round the Iveragh peninsula, containing some of the finest scenery in Ireland.

**Kerry Blue Terrier**. Compact and sturdy dog, with a soft, full coat of dark bluish tone, ears carried close to the head, tail thin and held erect. Strong, inclined to be pugnacious, it makes a good watchdog. It is popular in England, as well as in Ireland, its country of origin.

**Kerry Hill Breed**, see SHEEP.

**Kersey**, kind of woollen cloth which is twilled, and has a smooth face, soft nap, and diagonally ribbed appearance. It probably derives its name from K. in Suffolk, England.

**Kersley**, see KEARSLEY.

**Keshub Chunder Sen**, or Keshava Chandra Sen (1838-84), Indian religious reformer, b. Calcutta, of a high-caste family, and educ. at one of the colleges there. In 1857 he joined the Brahmo Samaj, a movement for religious reform, of which he shortly became the leader. In 1870 he visited England and was warmly welcomed, especially by the Unitarians. For an account of his doctrine and work see BRAHMO SAMAJ.

**Keshwa**, see QUEQUA.

**Kessel-Loo**, tn in prov. of Brabant, Belgium, 2 m. NE. of Louvain. Pop. 17,500.

**Kesseling, Albert** (1885- ), Ger. soldier, b. near Baireuth, of a good Bavarian middle-class family; entered the army in 1904, and served in the artillery. After 2 years on the W. front he joined the general staff, 1916. In 1926 he was transferred to the high command, under von Seeckt. He became a specialist in land-air co-operation, and one of the first advocates of the dive-bomber. In 1936 he was transferred to the Luftwaffe as the delegate of the Reichswehr, and became chief of the air staff, so as to restore full liaison

with the army. Having learned to fly he took command, in 1939, of the first Ger. operational air-fleet, and in the war co-operated with von Book's army group in Poland, in Flanders, and in the advance towards Moscow. In 1940 he became field-marshal. It fell to his lot to command the Ger. arms in three of the most crucial battles of the war against Britain: the battle of Britain (together with F.-M. Sperrle), the battle of Malta, and the battle of the Salerno beaches. He began all three with greatly superior forces, and with the odds all in his favour; and he lost them all. His defeats were not those of a blundering Nazi intruder; they were the defeats of the military caste itself. Nevertheless in April 1942 he was made commander-in-chief of the S. while Rommel (q.v.) remained only an army commander. But he failed again, his most resounding defeat being the conquest by the Allies of the Gothic line. Later, after von Rundstedt's defeat in the Ardennes battle, K. was put in command on the W. front. He was tried in 1947 before a Brit. military court, at Venice, for war crimes: for the massacre of 335 It. civilians at the Ardeatine caves in Mar. 1944, and for inciting his forces to ruthless acts against partisans. The trial began on 10 Feb., and closed on 6 May, K. being found guilty and sentenced to death by shooting, this being later commuted to life imprisonment. He appeared before a denazification court in 1952, and was released in June of that year. See his memoirs, 1953.

**Kessels, Matthew** (1784-1836), Dutch sculptor, b. Maastricht, studied in Paris, under Girodet, and at Rome, where he reproduced the 2 famous medallions of 'Dawn' and 'Night,' and won a prize in open competition with his statue 'St Sebastian pierced by Arrows.' His masterpiece was the mausoleum for the Comtesse de Selles at Rome.

**Kessingland**, par. and vil. of Suffolk, England, 4½ m. SW. of Lowestoft. Pop. 2000.

**Kesteven, Parts of**, div. of the co. of Lincs. in the SW. of the co. Area 463,490 ac.; pop. 130,717.

**Kestrel**, popular name of *Falco tinnunculus*, a species of birds belonging to the Falconidae, the alternative name, wind-hover, being sometimes given, owing to its habit of suspending itself in mid air while searching for its prey. The K. feeds on small mammals, insects, frogs, worms, etc., and is welcomed by landowners as a destroyer of vermin. The male bird attains a length of 12½ in., and has plumage of a reddish tinge, with head and neck of ashy grey; the female has dark spots or streaks with indistinct bars on the tail. It rarely builds its own nest, but uses those of crows, magpies, etc., or scrapes a hole on some cliff-ledge. It is found all over Europe and N. Asia, and migrates in the winter to China, India, and NE. Africa. *F. naumanni*, the lesser K., is an inhab. of S. and SE. Europe.

**Keswick**, anc. mkt tn of Cumberland, England. K. has a Druid Circle of 88 stones. Crosthwaite (the old par.) church



stands on the spot where St Kentigern planted his cross in 563. Greta Hall was the home of Southey, and, for a time, of Coleridge. Formerly a mining and woollen centre, K. now manufs. lead pencils. It is at the foot of Skiddaw (3085 ft. q.v.), and is a famous centre for rock-climbers and fell-walkers. Pop. 5000.

**Ketch, Jack** (d. 1886), public executioner, appointed about 1663, and for 2 cents. his name was used as a nickname for the holder of his office. This was probably due to the notoriety he obtained after his bungling execution of Lord Russell in 1683 and the Duke of Monmouth in 1685.

**Ketch** (from Turkish *gaik*, a boat; cf. Dutch *kits* and Fr. *carche* or *cache*), strongly built, 2-masted vessel of 100 to 150 tons burden. The peculiarity of the rig formerly afforded ample space, and they were used as bomb-vessels. The masts are the main and the mizzen, and the sails are mostly fore and aft. K.s were formerly much used as yachts.

**Keteleeria**, genus of 2 Chinese coniferous trees, family Pinaceae; *K. davidiana* and *K. fortunei* eventually grow to 80 to 100 ft.

**Ketene**,  $\text{CH}_2\text{:CO}$ , an unstable reactive gas made by passing acetone (q.v.) through strongly heated metallic tubes. It is used in the cellulose acetate industry.

**Ketones**, class of organic compounds allied to the aldehydes, but containing 2 alkyl, 2 aryl, or 1 alkyl and 1 aryl, groups united to the carbonyl (CO) group. The simplest ketone is acetone, or di-methyl ketone,  $\text{CH}_3\text{:CO:CH}_3$ ; phenyl methyl ketone or acetophenone (used as soporific under name of hyponne) is  $\text{C}_6\text{H}_5\text{:CO:CH}_3$ , and so on. K.s are prepared by oxidising secondary alcohols or by heating the calcium salt of a fatty acid; they are stable substances which form crystalline addition products with sodium bisulphite and condensation products with phenylhydrazine and hydroxylamine. On reduction they yield secondary alcohols, and on oxidation a mixture of acids. See ACETONE.

**Ketrzyn** (Ger. *Rastenburg*), tn of Poland, in Olstzyn prov., 40 m. ENE. of Olstzyn (q.v.). Until 1945 it was in E. Prussia (q.v.), and was the site of a Ger. national stud farm. It has a trade in agric. produce. Pop. 6000.

**Kett, Robert** (c. 1500-49), rebel. Though popularly called a tanner, K., who lived at Wymondham, possessed a good deal of land in Norfolk. He led an agitation against the enclosure of common lands. With his brother, Wm, he marched with a body of rebels to Norwich, and encamped on Mousehold Heath (6 July 1549). Later the rebels took Norwich, but in Aug. their forces were destroyed by troops under the Earl of Warwick. The K. brothers were captured and hanged, Robert being put to death in Norwich, 7 Dec., after a trial in London. See J. Clayton, *Robert Kett and the Norfolk Rising*, 1912.

**Kettering**, mkt tn of Northants, England, 72 m. NNW. of London. Its prin.

industries are the manuf. of footwear and clothing, and engineering. The H.Q. of the Boot, Shoe, and Allied Trades Research Association is in K. Wicksteed Park of 100 ac., which lies S. of the tn, was the gift of Mr Charles Wicksteed. Pop. 36,510.

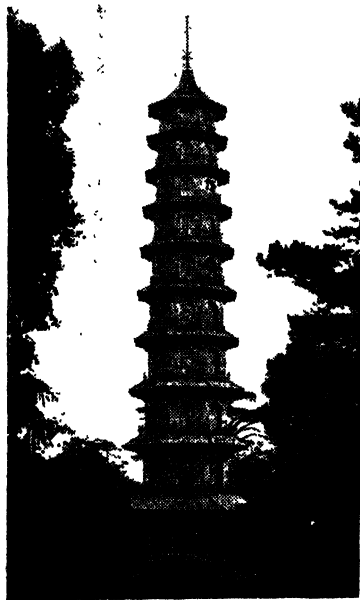
**Kettle-drum**, see DRUM.

**Keulen, or Ceulen**, Ludolph van (1540-1610), Dutch mathematician, b. Hildesheim, in the prov. of Hanover; prof. of fortification at Leyden. He devoted many years to finding the value of  $\pi$ , and in 1586 had computed its value to 20 decimal places. He continued his calculations up to the time of his death when he had worked it out to 35 decimal places. The term 'Ludolphische Zahl' was used until comparatively recent times in Germany to denote  $\pi$ . See also CIRCLE; METROLOGY;  $\pi$ .

**Keuper**, stratigraphical name, originating in Germany, for Upper Triassic rocks. In Britain K. beds fall into 2 divs.; an underlying K. Sandstone div. made up of continental sandstones with some marls followed by the K. Marls consisting chiefly of marls and shales. Important salt deposits occur in the K. Marls. In Germany the K. includes the Rhaetic Series and is divided into 3 groups: the Rhaetic, or Upper (Hautkeuper or Gypskeuper), the Middle, and the Lower (Kohlenkeuper or Lettenkohle). The first is mainly composed of sandy, dark grey shales and marls; the second, the thickest bed, of grey and green marls, gypsum, dolomite, and sandy shales below; the third, of grey dolomite with impure coal at the base. Some authorities regard the Brit. Rhaetic as the highest div. of the K. (see also RHAETIC BEDS and TRIASSIC SYSTEM). K. is not rich in fossils.

**Kew**: 1. Par. of Surrey, England, in the bor. of Richmond, on the R. Thames, 7 m. SW. of London, of which it is a suburb. A bridge connects K. with Brentford. The church on the green, dating from 1713, contains the mausoleum of the first Duke and Duchess of Cambridge and Gainsborough's (q.v.) grave. In the 18th cent., Frederick, Prince of Wales, lived at K. House. George III purchased the property later, and Queen Charlotte d. there (1818). The magnificent royal botanical gardens, containing the most famous collection of plants in Europe, were founded in 1759 by George III's mother, and have since increased in extent from 11 to about 200 ac., now forming the chief feature of interest at K. They were presented to the nation by Queen Victoria (1840), and have since been kept up at national expense, and are open daily to the public. Sir W. J. Hooker (q.v.) (1785-1865), and his son, Sir J. D. Hooker (q.v.) (b. 1817), who were both in turn directors of the botanical gardens (1841-85), contributed largely to their excellence. The temperate house (finished 1899) is one of the largest plant-houses in the world. There are numerous fine conservatories, palm-houses, ornamental temples, and an arboretum. The herbarium, which is the most important

in the world, the taxonomic library, the 3 museums, the Jodrell laboratory, and N. gallery, together with the living collections, constitute an unrivalled equipment for the identification of plants. These gardens have been of enormous practical use to the Brit. colonies; it is owing to researches carried on there, for instance, that rubber was estab. in



*The Royal Botanical Gardens, Kew*

THE CHINESE PAGODA AT KEW

the Malay peninsula, and that the cinchona tree, from which quinine is obtained, was introduced into India. The Chinese pagoda (erected 1761) is about 163 ft high. Chronometers and scientific instruments are tested at the K. observatory or meteorological station. *See also* BOTANIC GARDENS. *See* H.M.S.O., *Kew Gardens—Illustrated Guide*, 1935.

2. City of Bourke co., Victoria, Australia, residential suburb, 4 m. from Melbourne.

**Kewanee**, city in Illinois, U.S.A., 30 m. NE. of Galesburg, in agric. and coal-mining area. K. manufs. boilers, pumps, etc. Pop. 16,800.

**Keweenaw Peninsula**, Michigan, U.S.A., part of the Upper Peninsula of Michigan, curving 60 m. into Lake Superior. Formerly very rich in copper, it is now

a resort area, though there is still copper-mining, and also lumbering, farming, and commercial fishing. It is crossed by the Keweenaw Waterway and has boat connections to Isle Royale National Park.

**Key, Sir Astley Cooper** (1821-88), admiral, b. London; entered the navy in 1833. He distinguished himself at the time of the Crimean War. Between 1869 and 1872 he was superintendent of Portsmouth and of Malta dockyards. In the latter year he was made president of the Royal Naval College of Greenwich, was made admiral in 1878, and First Naval Lord of the Admiralty from 1879 to 1885. *See* P. H. Colomb, *Memoirs of Sir A. C. Key*, 1898.

**Key, Ellen** (1849-1926), Swedish authoress, b. Gladhammar. At first a teacher, she became interested in social reform, and began to write on marriage and the raising of the standard of living. Her *Barnets århundrade*, 1900, was a plea for the welfare of children. Her other works include *Tankebilder*, 1898 (trans. as *Ideas*), and *Lifskänner*, 1906 (*Lines of Life*). *See* J. Landquist, *Ellen Key*, 1904, and M. Leche-Löfgren, *E. Key Hennes liv och verk*, 1930.

**Key, Francis Scott** (1779-1843), Amer. lawyer, b. Maryland. Wrote the national anthem of the U.S.A., *The Star-Spangled Banner*. He is buried at Frederick, Maryland, where there is a monument erected to him at the entrance to the cemetery. The poem which has preserved his name was written in intensely dramatic circumstances during the war of 1812.

**Key, Thomas Hewitt** (1799-1875), Eng. classical scholar, b. London; educ. at St John's and Trinity Colleges, Cambridge. From 1825 to 1827 he was prof. of mathematics at the univ. of Virginia, and in 1828 prof. at the univ. of London. In 1832 he was made joint headmaster of Univ. College School, and in 1842 sole headmaster. He introduced the crude form system used by Sanskrit grammarians into the study of the classics. Writings include *Philological Essays*, 1868, and *Language: its Origin and Development*, 1874.

**Key**, *see* LOCKS AND KEYS.

**Key**, *see* SAMARA.

**Key**, in music, the term applied to a succession of notes in a scale considered with reference to their harmonic relations to one another, and to the chords which can be formed by them. The starting-note of each scale is the tonic or keynote, and gives its name to the K., which may be either major or minor, according to the intervals. The term K. is also applied to the levers by which the sounds of a musical instrument are produced.

**Key-dwellers**, name formerly given by archaeologists to a now extinct race. They lived in the numerous is. reefs or 'keys' (Sp. *cayo*, 'shoal', 'reef') off the W. Indies and Sp. America, especially in the low islets or sandbanks off the SW. coast of Florida, the chief being Cayo Largo and Cayo Hueso (Thompson's Is. or Key West) about 55 m. from Cape Sable. Wrecks are

frequent near this group of coral is. See F. H. Cushing, *Report of the Pepp Harriet Expedition*, Philadelphia, 1897.

**Key Islands**, see KEA ISLANDS.

**Key West**, port of entry, health resort, and co. seat of Monroe co., Florida, U.S.A., on K. W. Is. (4 m. long, 1½ m. wide), the most westerly of the group of Florida Keys (130 m. SSW. of Miami). Its harbour, which is an exceedingly fine one, is defended by Fort Taylor. The people are engaged principally in the manu. of cigars and in sponge fishing, but turtles, fish, fruit, and vegetables are also among the exports. The U.S. Gov. has a naval station, an air station, and a coastguard base here. Pop. 26,433.

**Keyes, Frances Parkinson** (1885-), Amer. novelist, b. univ. of Virginia, where her father, John Henry Wheeler, was prof. of Greek. She was educ. at Boston and various centres in Europe in the course of extensive travels which continued all her life. In 1904 she married Henry Wilder K., who was governor of New Hampshire from 1917 to 1919, and an Amer. senator from 1919 to 1937. Her first novel, *The Old Grey Homestead*, 1919, was followed by *The Career of David Noble*, 1921, *Queen Anne's Lace*, 1930, *Senator Mariou's Daughter*, 1933, *Honor Bright*, 1936, *All That Glitters*, 1941, *Came a Cavalier*, 1948, *Dinner at Antoine's*, 1949, *Joy Street*, 1950, *The Royal Dox*, 1954, and *Blue Camellia*, 1957. She also wrote *Letters from a Senator's Wife*, 1924.

**Keyes, Sidney Arthur Kenilworth** (1922-1943), poet, b. Dartford, Kent. He was educ. at Dartford Grammar School, Tonbridge School, and Queen's College, Oxford. He entered the army in 1942, and was commissioned in the Royal W. Kent Regiment, with which he served in the Tunisian campaign in the Second World War. In April 1943 he was either killed or d. while a prisoner of war in Tunis. His 2 pub. vols. of poetry, *The Iron Laurel*, 1942, and *The Cruel Solstice*, 1944, have a sibylline quality revealing a maturity remarkable in so young a man, a preoccupation with the themes of love and death, and a reliance on symbolism, at times obscure. His imagery is romantic, moving, and often beautiful, and springs from a mind well stocked both from literature and legend, and from an original and exact observation of nature. K. is believed to have written a number of poems in Africa, now lost. His essay, 'The Artist in Society,' was contributed to a symposium entitled *The Future of Faith*, 1942. His poems, with a memoir by Michael Meyer, were collected in an ed. pub. in 1945.

**Keyes of Zeebrugge and Dover**, Roger John Brownlow, 1st Baron (1872-1945), Eng. admiral, son of Gen. Sir Charles K. Entered navy as a cadet in 1885 and in 1890 served in Adm. Fremantle's naval brigade in the punitive expedition against the Sultan of Vitu. In the Boxer rebellion of 1900 he was in command of a destroyer, and with a handful of blue-jackets he achieved the formidable task of capturing the Taku forts, and was

promoted commander. Between 1906 and 1910 he was naval attaché at Vienna and Rome successively. In 1912 he was advanced to the post of commodore in charge of the submarine service, which he held until Feb. 1915. In this capacity he was responsible for all submarine operations in home waters in the first 6 months of the war, the boats under his command forming part of the naval screen which covered the completely successful passage of the B.E.F. to France. It was K. who, in Aug. 1914, submitted to the Admiralty a scheme for attacking the Ger. patrols in the Heligoland Bight, out of which developed the brilliant action of 28 Aug., K. being present on the *Lurcher*. K. also took part in the abortive operations for catching the Ger. cruisers which, in 1914, shelled Scarborough and Hartlepool. As chief of staff to Adm. de Robeck in 1915 K. supervised the naval movements in the Dardanelles from the first big naval attack to the final evacuation of Gallipoli. Following his promotion to rear-admiral in April 1917, he went to the Admiralty as director of the plans div. In Jan. 1918 he succeeded Adm. Bacon in command of the Dover Patrol (q.v.). On St George's Day, 1918, the raids on Zeebrugge and Ostend were carried out under his direction, with his flag in H.M.S. *Warwick* (see WORLD WAR, FIRST). After the war he was employed in command of the battle cruiser squadron of the Atlantic fleet; as deputy chief of the naval staff at the Admiralty, 1921-5; and, in succession, as Commander-in-Chief, Mediterranean station, and Commander-in-Chief, Portsmouth station, until 1931. In 1935 he passed automatically to the retired list. In the previous year he was elected Unionist M.P. for Portsmouth N., and represented that constituency till he was raised to the peerage in 1943. In Parliament his outstanding contribution was his forthright condemnation of the Norwegian campaign in the early summer of 1940. In 1940 he was restored to the active list, to serve as naval attaché for special liaison with the Belgian king. After Leopold's surrender K. urged that judgment on the king should be suspended until all the facts became known; a year later a pub. attack on Leopold and himself led K. to sue for libel, the case being settled in K.'s favour. Later he was appointed the first director of combined operations, being in charge of the organisation and training of the commandos and of the naval and air contingents that were then organised to work with them. But in Oct. 1941 his appointment was terminated on the advice of the chief of staff's committee. Though impetuous and outspoken, he was a sailor of combative instincts and intuitive dash, noted for his combination of coolness with remarkable daring; and in him and in his conduct of the famous raids on Zeebrugge and Ostend, the old offensive spirit of the navy was personified. His honours included G.C.B., K.C.V.O., D.S.O., many foreign orders, and honorary degrees of univ. His books include *Naval Memoirs* (2 vols.), 1935, *Adventures*

*Ashore and Afloat*, 1939, *The Fight for Gallipoli* (largely reprinted from his *Memoirs*), 1941, and *Amphibious Warfare and Combined Operations*, 1943. His son, Lt.-Col. Geoffrey K., was killed in leading a commando raid on Rommel's H.Q. in Libya, and was posthumously awarded the V.C.

Keyham, situated on K. Lake, is a part of Devonport (q.v.), England, and has a large dockyard.

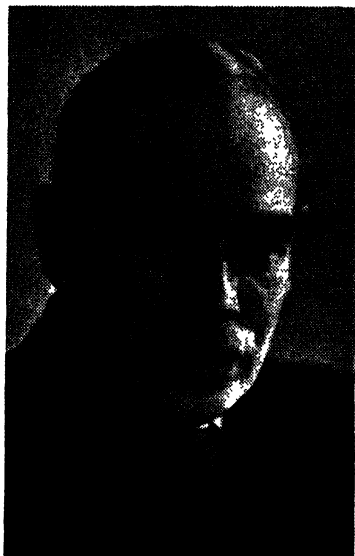
Keymer, par. and vil. of Sussex, England, 8 m. N. of Brighton. Pop. 3032.

Keyne, St. virgin saint who lived about 485, first in Wales and afterwards in Cornwall. She is supposed to have imparted a certain power to the water in a spring there, so that the first of a newly married pair drinking it shall be the ruler. The name still survives in a Cornish par. near Liskeard, and also at Keynsham in Somerset, where she is said to have lived as a recluse.

Keynes of Tilton, John Maynard Keynes, 1st Baron (1883-1946), economist, b. Cambridge, eldest son of Dr John Neville K., registrar of Cambridge Univ. and lecturer in moral science, was educ. at Eton and King's College, Cambridge, being twelfth wrangler in the mathematical tripos, 1905. President of the Cambridge Union, 1905, he won the members' Eng. essay prize for an essay on the political opinions of Burke. K. studied deeply in philosophy and economics, being influenced by Sidgwick, Marshall, Whitehead, and W. E. Johnson. In 1906 he passed into the first div. of the civil service, and chose the India Office, being attracted by the Indian currency issue. He gained a fellowship at King's College, Cambridge, and delivered a series of lectures on money. From 1912 he ed. the *Economic Journal*, and from 1921 to 1938 was chairman of the National Mutual Assurance Society; he also conducted an investment company (it is significant of his skill that he left over £400,000 at his death). A member of the royal commission on Indian currency and finance (1913-14), he worked in the Treasury (1915-19), going with Lord Reading's mission to the U.S.A.; was prin. Treasury representative at the Paris peace conference; deputy for the chancellor of the exchequer on the Supreme Economic Council (1919); and member of the Macmillan committee on finance and industry (1929-31). In 1940 he was appointed a member of the chancellor of the exchequer's consultative committee, and was made a director of the Bank of England. In the same year he pub. a pamphlet, *How to Pay for the War*, putting forward the idea of deferred credits. From 1943 he played a leading part in the negotiations with America to effect a transition from war to peace conditions of trade and set up international bodies which would avoid the damaging fluctuations and restrictions which so gravely prejudiced world prosperity between the 2 world wars. In 1944 he headed the Brit. delegation to the Monetary Conference of the U.N. at Bretton Woods (q.v.), and he was the chief figure in the Brit. delegation

which in 1945 discussed the terms of the Amer. Loan Agreement. Shortly before his death he was appointed governor of the International Monetary Fund and the International Bank for Reconstruction and Development.

K. was raised to the peerage in 1942; was chairman of the Arts Council, 1945. In 1925 he married the famous Russian dancer, Lydia Lopokova, and pub. *A Short View of Russia*. The posthumous *Two Memoirs* appeared in 1949.



Press Portrait Bureau

JOHN MAYNARD KEYNES

His genius was manifested in his weighty contributions to the principles of economic science; in his power of securing public interest in the practical application of economics on critical occasions; and, not least, in his attractive prose style—as exemplified particularly in his *Economic Consequences of the Peace*, 1919, and in his *Essays in Biography*, 1933. Few thinkers have ever achieved equal influence and recognition in their own lifetime, and to find an economist of comparable influence one would have to go back to Adam Smith. In his special field of political economy he became the teacher of a whole generation. The pub. of his *General Theory* has been described as the opening of a new era—the 'Keynesian era'; and the influence he exercised over his contemporaries was the greater because he was so much more than an economist. The traditional theories made no appeal either to his temperament or

to his reason. With the available resources and technique, he believed the W. world, at last, was 'capable of reducing the economic problem, which now absorbs our moral and material energies, to a position of secondary importance.' It was his faith and conviction that the day was not far distant when that problem would take a 'back seat where it belonged, and that the arena of the heart and head would be occupied by our real problems—those of life and human relations, of creation and behaviour and religion.' When once it had become evident to him that the classical theory could not explain, or prescribe remedies for, the outstanding economic malady of mass-unemployment, his intellectual integrity impelled him to challenge orthodox views with ever-increasing severity, and without regard to what he himself had believed and taught in the past.

He pub. his important *Indian Currency and Finance* in 1912. His *Treatise on Probability*, 1921, is a notable achievement; in it he uses mathematical symbols, yet rather than seeking to supplement the mathematical theory of probability it examines the philosophical bases of that theory and with a wealth of learning in the hist. of the subject. His *The Economic Consequences of the Peace*, pub. in 1919 after his resignation from the Brit. delegation to the Paris peace conference, made him world famous. Opinions differ on the merits of the Versailles Treaty, but there was common agreement, as to reparations, on his view that the settlement was ill conceived and likely to prejudice world economy.

More recently there has been increasing doubt on the validity of K.'s thesis in *The Economic Consequences of the Peace*, and whether this brilliant book did more good than harm. In any event it contributed greatly to the belief, both in Great Britain and America, that not only was the reparation policy impracticable, but that the treaty of Versailles was in general vindictive and evil. This in turn was a factor in increasing the isolationist forces in America and helping the nationalist movement in Germany. Etienne Mantoux maintains in his posthumously pub. work that K. greatly understated the potential capacity of Germany to pay substantial reparations, under appropriate conditions, with disastrous consequences.

His subsequent attack on the gold standard did not prevent a return to the standard in 1925, but certainly condemned that system afterwards. At the Treasury he carried his new ideas on to the plane of practical affairs, and the changed official outlook is an indication of his profound influence. His most searching contribution in this field was in what was theretofore called the theory of money, but which through his interpretation had an enlarged scope. For K. departed from the purely monetary aspect of the subject, and analysed all the factors determining the level of aggregate demand for goods and services. In explaining 'effective demand' he emphasised the distinction

between consumption expenditure and expenditure on investment. He showed that where the amount which the community wishes to save at the full employment level of income exceeds the amount which is wanted for investment purposes in the same circumstances, an equilibrium level of saving and investment might be brought about by a reduction in income, and therefore in saving, rather than by any factor in the situation tending automatically to raise investment demands to the level of full employment saving. K. aimed at what, mathematically, was a complete explanation of the phenomena studied, and did not concentrate on one particular phase of the trade cycle. He also linked together the factors responsible for short-period changes with those operating to determine the average levels of the variables over longer periods, and proved that these levels are also dependent on the quantitative responses of the system (see J. R. N. Stone, 'Lord Keynes: the New Theory of Money,' *Nature*, 9 Nov. 1946, vol. 158, No. 4019).

In the interval between the wars K. lectured at Cambridge, ed. the *Economic Journal*, and took a leading part in determining the economic and financial policy of the Liberal party. He was, unfortunately, unable to persuade the Conservative Gov. of 1925 not to reestablish the pound at its old parity, an error which was largely responsible for the general strike of 1926, and for an economic depression which occurred in Great Britain at a time when the rest of the world was recovering.

K. was right in his advice and accurate in his prediction of the consequences. In 1930 he pub. his *Treatise on Money*. This was original in its emphasis on the disparity between saving and investment. Wicksell, the Swedish economist, had approached this kind of analysis, but K.'s biographer, R. F. Harrod, says that K. reached his conclusions independently and not through Wicksell. Harrod adds that K. was indebted to D. H. Robertson; and he mentioned that K. knew of A. H. Abbot's *The Final Buyer*, 1928, 'which contained similar ideas,' and also refers to *Unclaimed Wealth*, 1924, 'by this interesting pioneer.' The *Treatise* proved to be a stepping-stone to a still greater work with an extended scope. This was *The General Theory of Employment, Interest, and Money*, 1936, which transformed the economic thinking of Great Britain and the whole of the W. world, and estab. K. beyond argument as the world's leading economist, both in his reputation and in his undeniable influence on policy. For long K. taught the Ricardian economics, which reflected progress under conditions in which the *laissez-faire* system seemed preferable to any practical alternative. But under changed modern conditions of industrial organisation and social laws, the limitations of that system have become increasingly obvious and serious in their consequences, of which the most evil has been the spectre of mass unemployment. K. revolted against the fatalism

of orthodox economics in face of mass unemployment, arguing for the control of all forms of investment, so as to combine collective direction with individual initiative, and for the proper timing of public expenditure; and he developed a new economic theory compatible with such a policy. *The General Theory* was comparable in its influence to Adam Smith's *Wealth of Nations*. In this book K. refuted the orthodox theory that all savings made by the individual flowed through the banks to the business community, to create new productive plant, etc. K. proved this to be a fallacy, and that there is no automatic mechanism to equate the total demand and the supply of productive labour. 'Whether the theoretical basis of his argument be accepted or not, enough of his doctrine to support most of his practical conclusions may now be said to be accepted as orthodox, and in any case these conclusions have been in fact embodied in policy both in Great Britain and in other countries. In the United States the "New Deal" under Roosevelt, and the new "full employment" policies in Great Britain, owe more to Keynes than can ever be precisely assessed' (see Sir Arthur Salter in *Personality in Politics*, 1947). 'Full employment,' moreover, is written into the Havana Charter. K. is often represented as the destroyer of the system of classical economics. The truth would seem to be that his followers, *plus royaliste que le roi*, read far too much into his writings and saw what they hoped they would see. In the *General Theory* itself K. said: 'The result of filling in the gaps in the classical theory is not to dispose of the "Manchester System," but to indicate the nature of the environment which the free play of economic forces requires if it is to realise the full potentialities of production. The central controls necessary to ensure full employment will, of course, involve a large extension of the traditional functions of government. Furthermore, the modern classical theory has itself called attention to various conditions in which the free play of economic forces may need to be curbed or guided. But there will still remain a wide field for the exercise of private initiative and responsibility. Within this field the traditional advantages of individualism will still hold good . . . advantages of efficiency . . . the safeguard of personal liberty . . . the safeguard of the variety of life.' And in the last article he wrote, published in the *Economic Journal*, he said: 'I find myself moved, not for the first time, to remind contemporary economists that the classical teaching embodied some permanent truths of great significance, which we are liable to overlook because we associate them with other doctrines, which we cannot now accept without much qualification.' See CLASSICAL ECONOMISTS and ECONOMICS OF EMPLOYMENT. See also R. F. Harrod, *The Life of John Maynard Keynes*, 1951.

Keynsham, tn in Somerset, England, lying midway between Bristol and Bath. A Rom. villa has been found here, and

there are ruins of a 12th-cent. abbey. Industries include the manu. of chocolate and paper. Pop. 11,000.

Keys, House of, third estate in the Isle of Man. It consists of 24 members, elected by the adult inhab., men and women.

Keys, The (W. Indian Is.), see CAICOS. Keyserling, Count Hermann (1880-1946), Ger. essayist and philosopher, b. Livonia, Russia; he was descended from a well-known family of Baltic barons and acquired Ger. nationality; he was educ. in the high school of Pernau and at Dorpat Univ. His first philosophical work was *Das Gefüge der Welt*, pub. in 1906; this was followed by *Unerblichkeit*, 1908, and *Prolegomena zur Naturphilosophie*, 1910. Deprived of his estate by the Russian revolution of 1905, he travelled round the world and, out of these experiences, wrote his *Reisetaugebuch eines Philosophen*, 1918, pub. in English as *The Travel Diary of a Philosopher*, 1925, which made him famous, not only in Germany, but in other countries. This book, like his other works, shows him to be a facile essayist on philosophical, psychological, and sociological subjects rather than an original philosopher. In *Das Spektrum Europas* (pub. in English as *Europe*, 1928), *America Set Free*, 1929, and *Südamerikanische Meditationen*, 1926-32, he purports to interpret the countries and races of the civilised world with reference to their natural environment, biological characteristics, and social hist. He became a vigorous opponent of the Nazis, who forbade him to lecture or to publish books. See M. G. Parks, *Introduction to Keyserling*, 1934.

Keystone State, see PENNSYLVANIA.

K.G.B. (Russian abbr. for Committee of State Security), name of the Soviet security service since 1953. It has essentially the same functions and methods as its predecessors the M.G.B. and M.V.D. (q.v.), but its position in the state is more modest and is subordinated to that of the party (see COMMUNIST PARTY OF THE SOVIET UNION), and its use of terroristic methods is far more restricted. The party leaders (see POLITBURO) appear anxious not to allow the security service to become a tool in the hands of any one individual.

Khabarovsk: 1. Kray in the Russian Far E., situated on the Lower Amur and along the Okhotsk littoral. It is largely covered with forests, and has a cold monsoon climate. There are large gold, coal, and iron ore deposits. There are mining and metallurgical industries, lumbering, and fisheries; there is agriculture in the S. The prin. tns are K., Komsomolsk, and Nikolaevsk. The area was first reached by Russians 1649-53; finally Russian, 1858-60. Jewish Autonomous Oblast (q.v.) estab. 1934. Area 332,000 sq. m.; pop. (1956) 1,140,000, mainly Russian and Ukrainian, also Jews (since 1928) and small local Asiatic tribes (until 1937 also Koreans and Chinese).

2. Cap. of the above, on the Amur and the Trans-Siberian Railway, largest city,

chief transportation and political centre, and second cultural centre of the Russian Far E. There are engineering, oil refining, and other industries. Founded 1858 as military post, in 1880 replacing Nikolayevsk as cap. of the Maritime Prov. 1918-22 mostly held by the Whites. 1926-38 cap. of the whole Soviet Far E. Pop. (1956) 280,000 (1913, 55,000; 1923, 34,000; 1939, 199,000).

**Khachaturian, Aram Ilyich** (1903- ), Armenian-Soviet composer, studied at Gnessin's school in Moscow and later under Miaskovsky and Vassilenko at the Conservatory. His works include 2 ballets, incidental music (e.g. *Macbeth*), 2 symphonies, various concertos, chamber, violin, and piano music.

**Khadi**, or **Khadar**, cloth made from handspun yarn in India. Its cult was developed by Gandhi to help under-employed peasants to supplement their incomes during periods of waiting for harvest time, etc., and leaders of the independence movement set an example by spinning and wearing K. and Gandhi caps made of K.

**Khadija**, first wife of the prophet Mohammed. She was a well-to-do widow, employed Mohammed as an agent for business, and then married him, though it is hard to believe that he was 25 and she 40, as is related. She bore him sev. children of whom only girls survived. She is said to have been the first to believe in his mission and was evidently a source of strength to him.

**Khaifra**, or **Cephren**, 3rd king of the 4th dynasty of Egypt, and the builder of the second largest of the 3 Giza pyramids.

**Khaibar Pass**, see KHYBER.

**Khair-ed-din**, see BARBAROSSA.

**Khairpur**, tn of W. Pakistan, 280 m. NE. of Karachi. K., once a seat of the Baluchi Amirs of Sind, is noted for woodwork with enamel inlay.

**Khakas Autonomous Oblast** in Russia, formed in 1930, lies in S. Siberia, in the Minusinsk basin (Krasnoyarsk Kray) W. of R. Yenisey. It has coal, iron ore, and gold deposits. There is gold- and coal-mining, lumbering, and cattle- and sheep-breeding. The cap. is Abakan. Area 24,000 sq. m.; pop. (1956) 408,000, Russians (since 18th cent.) and Khakas (a Turkic-speaking people, numbering 53,000 in 1939). See W. Kolarz, *The Peoples of the Soviet Far East*, 1954.

**Khalid ibn al-Walid**, 'the Sword of God,' was largely responsible for the defeat of Mohammed at the battle of Uhud, but became a Muslim in 629. He took part in the fighting during the rest of Mohammed's life, was the chief agent in defeating the Arab defection after his death, and led the early campaigns in Mesopotamia to victory and captured Damascus. He was for a time governor of a dist. in Syria and d. in Hims (Emesa) in 642. He was a great soldier but was almost dismissed from service for having an Arab chief killed and marrying his widow immediately afterwards.

**Khalid ibn Yazid** (d. 704), emir of the Umayya family. He is remembered as

the first Muslim alchemist, and is said to have learned the art from a Christian monk named Morienus. Some of his alchemical verse is still extant.

**Khalifa**, **Hajji**, or (in full) **Mustafa ibn 'Abdallah Kātib Chalebi Hajji Khalifa** (c. 1599-1658), Turkish author of works in Arabic and Turkish. He was with the army in Bagdad (1625), and present at the siege of Erzerum, returning to Constantinople in 1628; he made a pilgrimage from Aleppo to Mecca in 1633. His chief work is *Bibliographica Encyclopaedia* in Arabic (pub. by G. Flügel, 1835-58), on Arabic, Turkish, and Persian books and authors. For other historical works see C. Brockelmann, *Geschichte der arabischen Literatur*, II, 1902.

**Kham**, prov. now known as the Chamdo Autonomous Region, situated in the E. of Tibet. Chamdo is its chief tn. The upper courses of the Mekong, Salween, and Brahmaputra traverse K.

**Khamil**, see HAMI.

**Khammurabi**, see HAMMURABI.

**Khamsin** (Arabic 'fifty'), hot, oppressive, southerly wind of Egypt, blowing at intervals during Mar., April, and May for about 50 days, lasting generally for 3 days or so. It fills the air with sand, and during its prevalence diseases native to the country are very virulent. In Mediterranean regions it is known as the sirocco.

**Khan**, Turkish title, a contraction of *Kaghan*, a title of the monarch. It was used in the 10th cent. in central Asia by the Illekhan on their coins. Before the Mongol conquest it had become the title for a prince as opposed to sultan for the monarch. In Mongol times it was given to the governor of a prov., but later the distinction between it and the uncontracted form was lost. In Persia the title was given to the governor of a big prov. and sultan to the governor of a smaller div.

**Khan, Genghis**, or **Jenghis**, see GENGHIS.

**Khan-Tengri**, snow-capped peak of the Tienshan Range, central Asia, on the borders of the Kirgiz S.S.R. and Sinkiang, China, 85 m. SE. of the E. shore of Lake Issik-kul. Height 24,000 ft.

**Khanagiri**, tn in Iraq; 30 m. to the S. is a large oilfield, worked by a subsidiary of the Anglo-Iranian Oil Co. A pipeline runs to a refinery at K.

**Khandagiri**, vil. in Orissa state, India, 6 m. N. of Bhubaneswar. It is known for a large number of caves of both Buddhist and Jain origin.

**Khania**, see CANEA.

**Khanty** (formerly Russian *Ostyaks*), Ugrian-speaking people scattered in the K.-Mansi National Dist. and the surrounding areas, numbering 22,000 in 1927, mostly fishers and hunters, now collectivised. The K. were conquered by the Siberian Tatars; they stubbornly resisted Russian conquest and rule in the 16th-18th cents.

**Khanty-Mansi National District** lies astride the middle course of the Ob' (W. Siberia) and is included in the Tyumen' oblast. It consists of swampy forested

lowland, and has natural gas deposits. Fishing, hunting, and grain and potato growing are the main activities, and the prin. tns are Khanty-Mansiysk and Berëzovo. The area belonged to the Siberian Khanate and was annexed to Russia in the 16th cent. Area 215,500 sq. m.; pop. (1956) 118,000, largely Russian, also Khanty and Mansi (q.v.).

**Khanty-Mansiysk** (until 1940 Ostyako-Vogul'sk), tn in the Tyumen' oblast of W. Siberia, near the confluence of the Irtysh and the Ob', cap. of the K.-Mansi National Dist. It was built in the 1930's opposite the old vil. Samarovo. Pop. (1956) 19,000, mostly Russian.

**Khaqami** (c. 1106-c. 1185), Persian poet, b. Ganja and d. Tabriz. He is regarded as a master of the *qasida*, though his style is admitted to be difficult and obscure. He also wrote odes and a *mathnawi* poem, *The Gift of the Two Iraqs*. See N. de Khanikof, *Mémoire sur Khâcâni, poète persan du XII siècle*, 1864-5.

**Kharbin**, see HARBIN.

**Kharga**, see EL KHARGEH.

**Khargeh, El**, see EL KHARGEH.

**Khar'kov** (Ukrainian Kharkiv): 1. Oblast in NE. Ukraine, situated in the SW. of the central Russian upland, in the black earth belt, traversed by the Severskiy Donets, a trib. of the Don. There are large engineering and food industries, and natural gas extraction; the region also has wheat, sugar-beet, sunflower, and vegetable growing, dairy farming, and hog-raising. It was the E. border area of the Kievan state, Pereyaslav principality, Lithuania, from 1362; Muscovite, 1503, colonised largely by Cossack refugees from Polish-held Ukraine. Area 12,000 sq. m.; pop. Ukrainians, Russians, and Jews.

2. Cap. of the above, one of the main economic and cultural centres of the Ukraine and the whole Soviet Union. It is the largest industrial centre of the Ukraine, with a vast engineering industry (locomotives, tractors, aircraft, turbines, electrical and mining equipment, machine tools, agric. machinery, bicycles, etc.) and diverse light industries. Natural gas is pipelined from Shebelinka (q.v.). It is a big transportation centre (8 railway lines and an airport), third in the country after Moscow and Leningrad, in goods and passenger traffic. It has a univ. and other higher educational and research establs. There are some notable 17th-20th-cent. buildings. K. was founded in 1654 by immigrants from the r.b. of the Ukraine. It was an important frontier fortress and till 1765 H.Q. of a Cossack regiment; then prov. cap. From the 18th cent. it was the intellectual centre of S. Russia (K. College, founded 1721 in Belgorod, transferred to K. 1726; univ. founded 1805); in the 19th cent. it was a centre of the Ukrainian literary and national movement. Its economic importance dates from the second half of the 18th cent., when K. became a commercial tn with big fairs; from the 1870's K. was the gateway to the Donets basin (q.v.) and the economic and administrative

centre of the S. industrial area. K.'s own heavy industry dates from the same time (agric. machinery plant, 1879; locomotive plant, 1897). Sev. big factories were evacuated here from Riga during the First World War, and many new ones built in the 1930's. Politically K. was one of the Bolshevik strongholds both before 1917 and in the 1920's: it was the cap. of the Ukrainian Soviet Rep., 1919-1934. During the Second World War the city was in 1941-3 the key-point of sev.



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**KHAR'KOV: MONUMENT TO TARAS SHEVCHENKO, THE UKRAINIAN POET**

large-scale operations; it changed hands 5 times and was largely ruined. Pop. (1956) 877,000 (second in the Ukraine, fourth in the U.S.S.R.; 1917, 288,000; 1920, 230,000; 1926, 417,000; 1939, 833,000), Ukrainians, Russians, and Jews. **Kharsivan**, another name for salvarsan (q.v.).

**Khartoum**, or Khartum, prov. and chief tn of the rep. of the Sudan, Africa, on the Blue Nile (Bahr-el-Azrek), near its junction with the White Nile (Bahr-el-Abiad). K. was founded about 1820 by Mohammed Ali, and is strengthened by walls and forts. K. has fine quays, mosques, a cathedral, barracks, and a street railway. There are railway connections with Lower Egypt and with Upper Egypt and Suakin on the Red Sea. A bridge connects the tn with its suburb, K. North or Halfaya. K. is the H.Q. of the Sudan Airways, a gov.-controlled organisation which links the Sudan with neighbouring tns. There are sev. schools, and a technical institute. Higher education is catered for in the Univ.



College of K., consisting of the Gordon Memorial College and the Kitchener School of Medicine. The college has been granted recognition by the Univ. of London as a univ. college; it has faculties of arts, science, agriculture, engineering, veterinary science, and law. The Kitchener School of Medicine was opened in 1924, with its final examinations under the supervision of visitors from the Eng. royal colleges. Secondary education is also available at 2 new non-gov. schools, and the Sudanese are admitted to the Comboni College and to the Coptic College in K. K. was formerly a depot for slaves sent from the Sudan and Ethiopia into Egypt. It fell into the hands of the Mahdi in 1885, and Gordon, after his gallant defence, was murdered in the subsequent massacres. The Dervishes under the Khalifa (the Mahdi's successor) next ruined the city, and made Omdurman their H.Q. Not until 1898 were they defeated and K. recaptured by Anglo-Egyptian troops under Kitchener. Much of its former trade and prosperity was subsequently restored. Pop. 44,900; including K. North and rural dist. 136,400. See P. Crabtree, *The Winning of the Sudan*, 1934; K. D. Henderson, *Survey of the Anglo-Egyptian Sudan, 1898-1944*, 1946; W. J. Arkell, *Early Khartoum*, 1948.

**Khasi**, Indo-Chinese race, numbering about 193,000, inhabiting the K. hills, Assam, India. Their language appears to have its nearest kin in Cambodia and Vietnam. Inheritance of property is through the female line, as among Nairs in Malabar.

**Khasi Hills**, The, form, with the Jaintia hills, a dist. of Assam, India. They extend, E. to W., for about 200 m. and attain an altitude of nearly 10,000 ft, forming a barrier, some 60 m. wide, between the great valleys of the Brahmaputra and the Surma. They are of limestone formation, and are frequently visited by earthquakes. Shillong, Assam's administrative cap., lies in their midst at an altitude of 4800 ft. See also KHASI.

**Khaskovo**, tn of S. central Bulgaria, cap. of K. prov., on a trib. of the Maritsa (q.v.), 125 m. ESE. of Sofia (q.v.). It has important tobacco and textile industries. Pop. 27,000.

**Khatanga**, riv. in N. Siberia, rising in the central Siberian plateau and flowing NE. into the K. Bay of the Laptev Sea. Length 940 m., basin 130,000 sq. m.

**Khatmandu**, or **Kátmándu**, cap. of Nepal, India, near the confluence of the Baghmati and Vishnumati R.s. and 75 m. from the Indian frontier.

**Khayyam**, Omar, see OMAR KHAYYAM.

**Khazakstan**, see KAZAKHSTAN.

**Khazars**, Turkic-speaking people who in the early Middle Ages lived astride the lower Volga. They were culturally much influenced by Central Asian peoples, especially the Khorezm; the Jewish religion predominated but others were tolerated. From the 7th cent. the Khazar state embraced a vast ter. from the Urals to beyond the Dnieper and from the Caucasus to the R.s Oka and

Kama. Defeated by the Kievan Prince Svyatoslav in 966, the Khazar state declined, and the people are not known after the 12th cent.

**Khedive** (Persian *khidiv*, sovereign, ruler). In Persia the sense is quite general, but in Turkey it denoted a governor of a prov., so it may have been used in Azerbaijan when that prov. was under Turkish rule. In 1867 this title was granted by the Sultan of Turkey to the ruler of Egypt in place of *wali*, governor, and it was used by his successors till in 1914 it was replaced by sultan, and in 1922 by king.

**Khelát**, **Kelát**, or **Kalát**, see KALÁT.

**Kherson**: 1. Oblast in S. Ukraine, N. of Crimea, a region of flat, dry steppe traversed by the Dnieper. Wheat and sunflowers are grown, and cattle, hogs (Ukrainian steppe breed), and sheep (Askania breed) are reared. There are engineering, food, and textile industries, and a large hydro-electric power-station. A vast irrigation system is under construction. The prin. tns are K. and Kakhovka. Unpopulated until 1774-1783, when it was annexed by Russia. Area 10,600 sq. m.; pop. (1956) 807,000, Ukrainian and Russian.

2. Cap., economic and cultural centre of the above, port on the Dnieper near its mouth, 'sea-gate' to the Dnieper basin (oil from Batumi). There are agric., engineering, food-canning, and textile industries. Founded 1778 by Catherine II as a seaport and naval base with fortresses. Pop. (1956) 134,000 (1914, 81,000; 1923, 41,000; 1939, 97,000).

**Khersones**, see CHERSONESUS.

**Khidiv**, see KHEDIVÉ.

**Khingán**, 2 ranges of volcanic mts, Great and Little K., in the Chinese prov. of Heilungkiang on the E. of the desert of Gobi, separating Mongolia from Manchuria. Between them lies the Zeya-Bureya plateau, along the S. edge of which is the Amur valley. Their greatest altitude is 6500 ft. Also called the Bureya Mts.

**Khiva**, see KHOREZM.

**Khiva**, Desert of, see KARA-KUM.

**Khmel'nytskiy** (Ukrainian Khmel'nyts'kiy): 1. (until 1954 Kamenets-Podolskiy) Oblast in the Ukraine, SW. of Kiev, on the Volhynia-Podolia upland in the black earth wooded steppe belt. It has sugar-beet and wheat growing, horticulture, cattle- and hog-breeding, and food (sugar), metalworking, wood processing, and light industries. The prin. tns are K. and Kamenets-Podolskiy. It belonged to Volhynia, becoming Lithuanian in 1363, Polish in 1430, and Russian in 1793. Area 8000 sq. m.; pop. (1956) 1,631,000, mostly Ukrainians (before the war also Jews and Poles).

2. (until 1954 Proskurov) Cap. of the above (since 1944), on the S. Bug, an important railway junction. There is some industry (sugar, machine tools). It has been known since the 15th cent. Pop. (1956) 52,000 (c. 1914, 41,000), before the war almost half Jewish.

**Khmel'nytskiy**, Zinoviy Bohdan (1593-

1657), Ukrainian hetman (see UKRAINIAN HETMANS). Wronged by a Polish gentleman, he failed to obtain justice from the Polish senate and king, and in 1648 aroused the Ukrainian Cossacks (see COSSACKS; SICH) against Polish rule, winning with the support of the Crimean Tatars sev. victories. Pressed by the Poles, K. succeeded in obtaining protectorate from Muscovy and became a vassal of the Tsar Alexis Mikhaylovich (q.v.). See also UKRAINE. See G. Vernadsky, *Bohdan, Hetman of Ukraine*, New Haven, 1941.

**Khmer Language**, see LINGUISTIC FAMILIES, *Austro-Asiatic Linguistic Family*.

**Khnopff**, Fernand Edmond Jean Marie (1858-1921), Belgian painter, b. Grembergen, Termonde. He studied under X. Meilly, and was much influenced by the Eng. pre-Raphaelite school, notably later Burne-Jones. His work is distinguished by a certain curious mystic note, as found in the enigmatic 'Silence,' 1890, and 'Sibyl,' 1894. See the studies by Pol de Mont, 1901, and Dumont-Wilden, 1907.

**Khoi-Khoi**, see NAMAQUA.

**Khoi, Khoi**, see KHUY.

**Khojend**, or **Khojent**, see LENINABAD.

**Kholm**, see CHELM.

**Kholmogory**, vill., former tn, in the Archangel oblast of N. Russia, on the N. Dvina, 52 m. SE. of Archangel. It is the centre of a dairy-farming area (K. breed). K. has been known since 1355, and was cap. of the Russian N. under Novgorod and Moscow until 1700; in the 15th-16th cents. it was a lively trade centre. Pop. (1926) 1000.

**Khonds**, or **Kus**, Dravidian people who inhabit the Central Provs. of India. They used formerly to offer human beings as sacrifices. They must not be confused with the Gonds. Their number is estimated at 700,000.

**Khonsar**, or **Khunsar**, dist. and tn about 160 m. NE. of Ahvaz. Pop. of tn 25,000.

**Khorasan**, or **Khurasan**, N.-easterly prov. of Persia, bounded by Russian Turkestan on the N., Afghanistan on the E., Gorgan on the N., and Kerman on the S., with an area of about 124,000 sq. m. It is traversed by spurs of the Elburz Mts. The chief products of the soil are grain, tobacco, opium, cotton, and fruits, and it is famous for its wool. There are turquoise mines at Nishapur. In the early Middle Ages the name K. was applied to all the Muslim provs. E. of the Great Persian Desert as far as the frontier of the Indian mts. In the later Middle Ages it was taken to extend only to the Oxus in the NE. In medieval times it was divided into 4 quarters, the main tns of which were Nishapur, Marv, Herat, and Balkh. The cap. at the present day is Mashhad (q.v.). Pop. about 2,000,000.

**Khorezm**, or **Khiva**, former khanate of Russian central Asia, and now an oblast (prov.) of the Uzbek S.S.R., occupying part of the delta of the R. Amu Darya, and extending from 41° to 43° 40' N. lat., and from 58° to 61° 50' E. long. The dist. around K. is watered by numerous

irrigating canals from the R. Amu, and forms an oasis with an area of 5210 sq. m. Here are grown millet, rice, wheat, barley, oats, peas, flax, hemp, and a great variety of fruits, including grapes and large quantities of melons. Sheep, cattle, horses, and camels are reared, and pottery, textiles, and silk produced. Once a mighty kingdom holding great possessions, in 1873 it became a vassal state to Russia. The khan was deposed in 1920, and in 1924 K. joined the Socialist reps., part of it being included in Turkmenistan, part in Uzbekistan. Chief tns: Khiva, Urgench, and Kungrad. Pop. 330,000.

**Khorrasmshahr**, dist. and tn in the prov. of Khuzistan, Persia. The tn, formerly called Muhammerah, is situated between the Shatt-ul-Arab and the Karun R.s. It is at the S. end of the Trans-Iranian Railway, and has become the most important Persian port in the Persian Gulf. Pop. of tn 43,800.

**Khorsabad**, vill. of Iraq, 13 m. NE. of Mosul. The first discovery of the antiquities of Nineveh was made here by Paul Botta in 1842.

**Khosru I and II**, see KHUSRAW I and II.

**Khota** (locally *Hehi*), name of a tn and oasis of Sinkiang, China. The oasis lies between the N. extremity of the Kunlun and the edge of the Takla-makan Desert; there are two small tns therein, Kara Kash and Yurin Kash, and 300 vils. Cereals, rice, flax, hemp, tobacco, silk, and cotton are produced, and a trade is carried on with India and China. The tn of K., formerly of great importance, lies about 180 m. SE. of Yarkand, and is composed of narrow, winding streets, with open squares at intervals. Sven Hedin discovered the ruins of ancient cities in the K. dist., and in 1913-16 Stein discovered many priceless Buddhist frescoes, etc. Jade or nephrite for fancy articles, etc., has long been a famous product, and other minerals, including gold and precious stones, abound; in addition carpets, silk, silk goods, felt, and hides are manuf. It is linked by road and airline with other tns in Sinkiang. Area of desert 400 sq. m.; pop. (oasis) 40,000.

**Khotanese Language**, see INDO-EUROPEAN LANGUAGES.

**Khotin** (Rumanian *Hotin*), tn in N. Bessarabia, on the Dniester, in Chernovtsy oblast of the Ukraine. It has the ruins of 13th-cent. Genoese and 18th-cent. Turkish fortresses. It has been variously held by Moldavians, Poles, and Turks; in 1812 it became Russian, and 1918-40 and 1941-4 it was Rumanian. Pop. (1930) 15,000 (1922, 32,000), mostly Ukrainian.

**Khrushchëv**, Nikita Sergeyevich (1894-), Russian Communist, since 1953 first secretary of the Central Committee of the party. He comes from a peasant family, and received little school education; as a youth he was a coal-miner in the Donets Basin, where he joined the Communist party in 1918. K. soon specialised in organisational work in the party. In 1934 he was second secretary of the Moscow party organisation under

Kaganovich, in 1935 first secretary, in 1938 first secretary of the party in the Ukraine. Both in Moscow and the Ukraine K. was active in carrying out the great purge (q.v.). In 1939 he became a member of the Politburo (q.v.), and during the war he was active as a high-ranking political commissar in the armed forces. In the last years of Stalin's rule K. became the party's main agric. expert, but his first ambitious project in this field—creating 'rural cities' out of groups of collective farms—was a fiasco and the plan was abandoned. The struggle in the party leadership after Stalin's death resulted in K. superseding Malenkov as the first secretary of the Central Committee. After Malenkov's resignation in 1955, K. emerged as the most prominent member of the 'collective leadership.' In 1957 he ousted from the leadership his chief rivals, Malenkov, Kaganovich, Molotov, and Zhukov (qq.v.); and in 1958 he replaced Bulganin (q.v.) as chairman of the Council of Ministers (Prime Minister), while still retaining the leadership of the party.

Khulna, tn of E. Pakistan, 80 m. ENE. of Calcutta. K. is an important riv. port in the Ganges-Brahmaputra delta, but a new seaport is being energetically developed at Chalna, 18 m. to the S.

Khunsar, see KHONSAR.

Khurasan, see KHORASAN.

Khusraw I reigned over Persia AD 531 to 579. He is known also under the name Anushirvan. During the reign of his father, Qubad, he put down a dangerous revolt by the Mazdakites (see MAZDAK). In 540 K. broke the peace with the Emperor Justinian made in 531, invaded Syria, and carried off the inhab. of Antioch to found a new city near Ctesiphon called Khusraw-Antioch. In 562, after successive warfare against the Romans in Lazica (Colchis) and Mesopotamia, he made a peace whereby the Romans agreed to pay subsidies but kept Lazica, whilst K. agreed not to persecute the Christians. Uniting later with the Hephthalites against the Turks, K. proceeded to conquer Bactria, and in 570 he made Yemca a Persian dependency. K. carried out various measures of military reform, and completed the financial and agrarian reforms begun by his father, Qubad. K.'s reign was a brilliant epoch and he is regarded by later Muslim writers as the type of a just ruler. The name K. was known to Byzantine and W. historians as Chosroes.

Khusraw II reigned AD 590 to 628; he established himself firmly on the Persian throne after recourse to the help of the Emperor Maurice to defeat the usurper Bahram Chobin in 591. Three years later he began war against the Christians and Rome, ostensibly to avenge the murder of his ally, Maurice. His armies overran Syria and Asia Minor, and captured Damascus and Jerusalem (614), Alexandria, and other dists. in Egypt. But between 622 and 629 the Emperor Heraclius recovered all the recent conquests and restored the Holy Cross to

Jerusalem. During K.'s reign Persia was reduced to a state of chaos. He was killed during a revolt of his generals, his eldest son being proclaimed king.

Khuyl, dist. and tn in the prov. of Azerbaijan, Persia, 75 m. NE. of Tabriz. The dist. is bounded by Maku on the N., Reza'iyeh on the S., Marand on the E., and Turkey on the W., and covers about 1100 sq. m. It has a moderate climate. The chief industry is agriculture; fruit, grain, tobacco, and cotton are especially cultivated. The tn was partially destroyed by an earthquake in 1842. Pop. of tn 34,500.

Khuzistan, formerly called Arabistan (ancient Susiana), prov. of Persia, bordering on the N. shores of the Persian Gulf. The N. and E. dists. are hilly and productive. Large tracts are used as pasture land, and rice, cotton, sugar-cane, dates, tobacco, and opium are grown. The S. portion is flat and infertile. The Karkheh, Dez, Karun, Jarrahi, and Hendian R.s flow through the prov. It contains large oil deposits. Ahvaz is the chief tn. Area 25,700 sq. m.; pop. about 1,140,000.

Khyber, or Khaibar, Pass, narrow pass connecting Pakistan and Afghanistan. Its length is about 33 m., and its width varies from 450 ft in its widest part to about 50 ft in its narrowest part. It is the great N. military route from India (Pakistan) into Afghanistan, and all the great invasions of India have come through it. Commencing near Jamrud to the W. of Peshawar, it twists NW. through the mts at the junction of the Safid Kuh with the Sulaiman range and eventually debouches near Lalpura, on the Kabul R. It is flanked on both sides by mts which rise sheer above it to a height of 3000 ft in some places, its summit being at Landi Kotal, which is 1700 ft higher than Jamrud. During the Afghan wars of 1839-42 and 1878-80 the Brit. were successful in crossing it in spite of great resistance. Since 1925 there has been a railway running through the pass as far as the Afghan frontier. (See illustration, p. 470.)

Kiashta, Kiakhta, see KYAKHTA.

Kiamil Pasha (1832-1915), Turkish politician, b. Leukas. He was grand vizier in 1885. His action in regard to the Armenian unrest in 1890 led to his dismissal. As an advanced Liberal he was again made grand vizier in Aug. 1908, after the Young Turk revolution. He was forced to resign in Feb. 1909, and was succeeded by Hilmi Pasha. He was grand vizier for a third term during the Balkan war (1912-13), and was succeeded by Mahmud Shevket Pasha at the coup d'état of 23 Jan. 1913.

Kiangsi, E. prov. of China, with an area of 64,956 sq. m. The Nanshan Mts lie across the prov. in a S.-westerly and N.-easterly direction. In the NE. region is the immense Poyang Lake (1200 sq. m.), which receives the waters of the Kankiang and the Yangtze. Black tea was for long the most important product, but, with the general decline of the China tea trade, K.'s teas are now chiefly green teas,

intended for export to Russia. Other products are coal, copper, timber, rice, cotton, silk, linen, and paper. Porcelain is made at Chingtochen. The cap. is Nanchang (q.v.), on the Kankiang; other notable tns are Kanchow, Chian (q.v.), Pingsiang (rich in coal), and Kiukiang (q.v.). From 1927 to 1932 K. was the continuous arena of bitter fighting between Chiang Kai-shek's troops and the Chinese Red Army, and the civilian pop. suffered greatly. The beginning of July

Kiaochow, see TSINGTAO.

Klayukwan, see CHIAYUKUAN.

Kibo, see KILIMANJARO.

Kiekhams, Charles Joseph (1826-82), poet and novelist, b. Mullinahone, Tipperary. He intended to become a doctor, but a shooting accident which injured his sight and hearing prevented this. Joining the Fenians, he was appointed in 1865 to the supreme executive of the projected Irish Rep., but on the failure of the rising he spent 4 years in prison, where he



THE KHYBER PASS

E.N.A.

Camel caravans threading their way through the gorge.

1942 saw the Jap. invaders in control of the major air bases of K. and Chekiang. Pop. (1954) 16,772,865.

Kiangsu, maritime prov. of China, bordering on the Yellow Sea to the E. Area 40,583 sq. m. It is a great plain with no hills, and is watered by the Grand Canal running S. to N., and by the Hwai and Yangtse R.s. The cap. is Nanking, and the chief port Shanghai. Some coal and iron ore are extracted near Nanking; sugar, tea, rice, wheat, and cotton are grown; and beautiful silks are manuf. K. is among those provs. where the literacy of the pop. is very high, and is known to have produced the greatest number of scholars, poets, and scientists. Its big, anct cities like Soochow, Wushih, and Yangchow have preserved numerous famous gardens. Pop. (1954) 41,252,192.

wrote his first novel, *Sally Kavanagh*, or *The Untenanted Graves*, 1869. He stood unsuccessfully as a candidate for Tipperary, and after that devoted himself to writing. His poems and stories, written from a nationalist point of view, were collected in *Poems, Sketches, and Narratives Illustrative of Irish Life*, 1870. Later novels were *Knocknagow*, or *The Homes of Tipperary*, 1879, and *For the Old Land, a Tale of Twenty Years Ago*, 1886.

Kicking Horse Pass, in the Rocky Mts, between Brit. Columbia and Alberta, Canada, 35 m. NW. of Banff. With an altitude of 5339 ft it is the highest point on the Canadian Pacific Railway.

Kidd, Benjamin (1858-1916), sociologist, who had but small advantages of education and social position. At 19 he

entered the civil service as a clerk in the Inland Revenue, where, after 17 years of obscurity, he pub. his *Social Evolution*, 1894, which was so successful that he resigned from the service and devoted himself to travel and writing. The dominant idea of his book is that religion is the central feature of human hist., that moral progress consists in compelling individual selfishness to subordinate itself to the common good, and that reason gives no help in this conflict. K. had no literary style, and no power of shaping his ideas into a coherent system of philosophy, though he had the gifts of a popular philosopher. Also wrote *Principles of Western Civilisation*, 1902, and *The Science of Power*, 1918. See *Dictionary of National Biography*, 1912-21.

Kidd, William (Captain Kidd) (c. 1645-1701), Scottish pirate, who emigrated to America as a young man. In 1691 he was awarded £150 from the council of New York for his services in privateering against the French. He was put in command of a ship in 1696 with orders to seize the pirates that infested the E. seas, and reached Madagascar in 1697. In 1698-9, however, news reached England that K. was plundering trading vessels, and had associated himself with the pirates. He was arrested, and, having been formally charged with the murder of one of his crew and with piracy, was found guilty and hanged at Execution Dock, London. See G. Brooks (ed.), *The Trial of Captain Kidd*, 1930.

Kidderminster, municipal bor. and mkt tn in the co. of Worcs, situated on the Stour, 14 m. N. of Worcester. The church of All Saints is a fine example of Early Eng. architecture, with Decorated and Perpendicular additions. K. has long been the prin. centre of the Brit. carpet trade, and 42 per cent of the industry is concentrated there. Wilton, Axminster, Brussels, and chenille carpets are the chief varieties made, but 'K.,' or ingrain, carpets are no longer woven locally. Cloth has been woven in the tn since 1235, at least, and the charter of incorporation, granted by Charles I in 1636, describes it as 'an ant. borough of great commerce for the making and manufacture of cloth.' Carpet manuf. was introduced in 1735. Other industries represented are worsted spinning, drop forgings, electrical equipment, chemical manuf., tin-plating, and light engineering. There is also a large sugar-beet factory. Sir Rowland Hill, originator of penny postage, Sir Josiah Mason, philanthropist and inventor of the steel pen, and Frederick Easthope Martin, the composer, were b. in K. Richard Baxter (1615-91), nonconformist divine and creator of popular Christian literature, was vicar for 14 years. The Staffs and Worcs Canal passes through the tn. Area 4694 ac.; pop. 37,960.

Kidnapping is defined by Blackstone as the forcible abduction or stealing away of a man, woman, or child from his or her own country to another. It is now, however, usually confined to the offence of

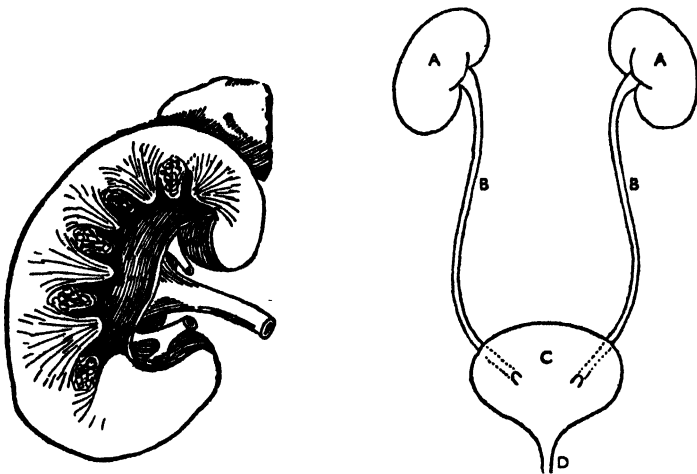
child-stealing, or the crime of leading, taking, or enticing away a child under 14, with intent either to deprive the parent or other person having lawful care or charge of the possession of the child, or to steal any article upon the child. The offence is a felony under the Offences against the Person Act, 1861, punishable with 7 years' imprisonment. Of a similar nature is the misdemeanour of forcibly taking an unmarried girl under 16 out of her parents' or lawful guardian's possession, such abduction being punishable by imprisonment not exceeding 2 years. Blackstone under the title of K. notices also the cognate offence of forcing a seaman on shore from a vessel and leaving him there; which offence is now a specific crime under the 57 and 58 Vict. c. 60, and punishable with imprisonment not exceeding 2 years, or summarily with 6 months' imprisonment or a penalty not exceeding £100. In the U.S.A., which has had a number of sensational cases of this crime, the K. and transportation of any person, regardless of age, across a state border for the purpose of extortion is punishable by imprisonment for life or by death. See also ABDUCTION.

Kidney, one of 2 glands situated, in man, in the upper and posterior part of the abdominal cavity, one on each side of the vertebral column, the function of which is to form and excrete urine. The concave side of the K. is turned towards the spine and the renal artery, a branch of the abdominal aorta, enters through this concavity, and the renal vein leaves to join the inferior vena cava. A cross-section of the K. (see figure) shows that externally it is covered by a tough fibrous capsule; next to the capsule is the cortex; inside the cortex comes the medulla, from which a number of pyramids point their apices into what is known as the pelvis. The pelvis is a cavity into which the urine is excreted and from which it is drained by the ureter, the tube leading from the K. to the bladder (q.v.). On top of each K. lies a pyramidal-shaped ductless gland known as the suprarenal capsule (q.v.). The K. lies loosely embedded in surrounding fat and connective tissue and is fairly mobile. The so-called floating K. is nothing but a slightly greater degree of mobility than usual, and is of no pathological significance. The renal medulla consists in hundreds of minute tubules, the renal tubules, open at one end where, at the apex of the pyramids, they excrete urine into the pelvic cavity. The other end of the tubules is sealed off and terminates in an expanded, cup-shaped capsule. Within the cavity of the cup many capillary blood vessels are coiled and this bunch of capillaries is known as a glomerulus. The glomerulus and the capsule of the tubule together are known as the Malpighian bodies (Malpighi, M., It. anatomist, 1628-94). Capillary blood vessels also surround the tubules in their course from the glomeruli to their termination at the apex of the pyramid. The whole structure of glomerulus, tubule, and the blood supply to the tubule is known

as a 'nephron.' The nephrons enable the K. to perform its function, which is to maintain the volume and concentration of the various constituents of the body fluids within normal limits. To achieve this the nephrons regulate the excretion of water, sodium, potassium, chlorides, phosphates, oxalates, and urates, and also eliminate from the body the waste products of metabolism, such as urea. The glomerulus acts as a filter, and as blood flows through the glomerular capillaries fluid of the same composition as protein-free blood plasma enters the tubule. As the filtrate passes down the

of blood flowing through the glomeruli is reduced. Nature so arranges her affairs as to have plenty of reserves against failure of the vital functions of the body. Thus it is that there are 2 kidneys, but health can be maintained by one alone, and thus it is also that each K. can still function efficiently with but two-thirds of the number of nephrons with which it is furnished. Average excretion of urine per day is about 50 oz., or 2½ pints.

**Diseases.** Inflammation of the peronchymatous part of the K. is described under NEPHRITIS. Inflammation from bacterial infection of the pelvis of the K.



KIDNEY

Left: structure. Right: A, kidneys; B, ureters; C, bladder; D, urethra.

tubule some 98 per cent of the water and lesser amounts of the substances dissolved in it are re-absorbed by the epithelium lining the tubules and pass back into the blood stream. As relatively more water than its solutes is re-absorbed, by the time the fluid reaches the end of the tubule it contains more sodium, more chloride, and more urea per ml. of water than it did at the start of its journey. Urea is formed from the metabolic breakdown of proteins and the level in the blood is largely governed by the rate of excretion by the K. The amount excreted depends largely upon the amount of fluid filtered through the glomeruli and this, in turn, depends upon the pressure and volume of blood flowing through them and by the rate of urea formation in the body. From this the reader may understand how uraemia (q.v.) may readily occur in those diseases of the K., such as nephritis (q.v.), which interfere with the proper functioning of the glomeruli and in those diseases in which, for various reasons, the volume

is described under PYELITIS. Suppurative infection of the perinephric fat and connective tissues is apt to occur in connection with septic infections elsewhere in the body—for instance, a carbuncle (q.v.)—with the formation of a perinephric abscess. **Renal calculus**, or stone, formation commonly occurs in the pelvis of the K. Consisting in concretions of deposits of phosphates, oxalates, or urates, these calculi grow from small seedlings to sizes up to that of a hen's egg. When small they may be passed down the ureter into the bladder and their passage causes acute pain of a colicky nature, known as *renal colic*, and very often blood in the urine, or *haematuria*. Renal colic may also occur when a calculus attempts to pass down the ureter but fails because it is too large. A calculus may cause obstruction to the passage of urine from the pelvis into the ureter with the result that the excretions of the K. are dammed back and remain within the pelvis. The increasing accumulation of

fluid distends the pelvis like a balloon until it reaches a considerable size and the resulting pressure destroys the K. tissue. If the obstruction is not relieved the K. is eventually replaced by a bag of fluid. This condition is known as *hydronephrosis*. A hydronephrosis often becomes infected with bacteria and the fluid becomes purulent. The condition is then known as *pyonephrosis*. The reason why some people should form renal calculi and not others is not always clearly understood. Stone formation is probably due to some metabolic fault, and if this fault could be known then prevention might be possible. As it is, stones that are causing symptoms must be removed by operation. Cancer of the K. may occur, as it may occur in any organ, but it is not common.

**Kidney Bean, see BEAN.**

**Kidney Stones,** reniform masses of ferric oxide, usually red or brown; neither so hard nor so dense as crystalline haematite; usually occur in association with clay, as in the S. of England. This deposit is the red ochre of commerce.

**Kidney-vetch, or Lady's Fingers,** popular name of *Anthyllis vulneraria*, a leguminous plant which flourishes in Britain. The plant is a herb with glaucous leaves, the capitulate inflorescence is composed of yellow flowers, the stamens are united by their filaments, and the floral mechanism is like that of the *Lotus*, bird's-foot trefoil.

**Kidron, see KEDRON.**

**Kidsgrove, tn of Staffs, England, 8 m. N. of Stoke-on-Trent.** Industries include nylon spinning, electronic engineering, light engineering, and the manuf. of chemicals and clothing. Pop. 16,540.

**Kidston, George Pearson Glen (1897-1931),** Brit. millionaire, naval lieutenant-commander, and airman. In April 1931 he broke the existing England to Cape record, landing at Cape Town in 8½ days. He was killed in a plane crash in Natal.

**Kidwelly, or Cydweli, bor. of Carmarthenshire, Wales, on the Gwendraeth, near Carmarthen Bay.** It has silica and brick works, an optical glass factory, and coal-mines. Here are the ruins of an 11th-cent. castle. Pop. 3200.

**Kieff, see KIEV.**

**Kiel, city of N. Germany, cap. of the Land of Schleswig-Holstein (q.v.).** It is on the Baltic, on the natural harbour of the Kieler Förde, at the terminus of the K. Canal (q.v.). It became a city in 1242, and was a member of the Hanseatic League (q.v.). After 1871 it grew into the chief naval port of Germany. In 1918 the naval mutiny at K. (see GERMANY, *History*) was the precursor of Germany's downfall. After the war the city's fortifications were destroyed, but it had again been strongly fortified before the Second World War, during which K. was badly damaged (see below). It has since been largely reconstructed. The most interesting of the ancient buildings remaining is the 13th-cent. castle. K. has a univ. (1665), good libraries and theatres, an Institute of World Economics, and

botanical gardens. A memorial has been erected to the 36,000 Germans who lost their lives in U-boats (see SUBMARINES) in both world wars. The chief industries are shipbuilding, fishing, and the manuf. of machinery and foodstuffs. Pop. 257,000.

K. was frequently attacked from the air in the Second World War. One of the earliest of the heavier raids was in Mar. 1942. The *Gneisenau* came under heavy air attack in its floating dock at K. in Feb. 1942, and was moved to Gdynia for extensive repairs. There were frequent daylight raids on K. during Nov.-Dec. 1943, the targets including aircraft factories. There were further attacks in 1942, 1943, and 1944. In July the allied assault on communications involved massive attacks on K. and Bremen and other great ports, the attacks being integrated with both the offensive on the W. front and with the Russian advance. K. in that month and Aug. was repeatedly the target for attacks in which fire bombs were used in a vast and ever-increasing quantity. K. was one of the objectives of the Twenty-first Army Group of F.-M. Montgomery (q.v.) in the closing stages of the war after the Allies had reached the Elbe. Montgomery's task was first to secure Hamburg, and then advance with the utmost speed on the general area of Kiel-Lübeck and liberate Denmark, using, if necessary, an airborne assault to force the K. Canal, and allied naval and air forces were to assist in the operations. The Brit. Second Army encountered persistent opposition in its attacks towards Bremen and Hamburg, but following the fall of Bremen (26 April) the situation changed; Hamburg having surrendered on 3 May, the Germans were sealed off in Denmark, and, with the junction of the allied fronts, all resistance in N. Germany ceased. See WESTERN FRONT IN SECOND WORLD WAR.

**Kiel Canal (Kaiser Wilhelm Canal),** Ger. canal in the Land of Schleswig-Holstein, connecting the Baltic to the Kieler Förde with the N. Sea at the estuary of the Elbe (qq.v.). An early canal (1784) from Kiel to the Eider (qq.v.) proved inadequate, and the cutting of the present canal was begun in 1887; it follows the course of the earlier canal as far as Rendsburg (q.v.) and then runs SW. It was opened by William II in 1895, but work on it (particularly with the object of enabling it to take the largest warships) continued until 1914. In 1954 it was used by 56,687 vessels with a net tonnage of 25,700,000. Length 61 m.

**Kielce: 1.** Prov. (*województwo*) of SE. Poland, drained by the Vistula (q.v.) and Pilica R.s. It includes the greater part of the former Kietay and Radom dists. of Russian Poland. Some of the ter. of the pre-Second World War prov. of K. (area 9880 sq. m.) is now in the provs. of Katowice and Crakow (qq.v.). The land is in general fertile upland; livestock is raised, and cereals and flax are grown. There are textile and metal industries. Area 7545 sq. m.; pop. 2,500,000.

**2. (Russian Kietay) City of Poland, cap. of K. prov., 195 m. S. by W. of**

Warsaw (q.v.). In 1795 it went to Austria, and in 1815 to Russian Poland (where it was the cap. of the Ketsy dist.). It has ironworks, and manufs. rolling-stock, munitions, foodstuffs, and chemicals. There are marble quarries near by. Pop. 50,000.

**Kiepert, Johann Samuel Heinrich** (1818-1899), Ger. geographer, b. Berlin, and educ. at the univ. there. His first work, in conjunction with Karl Ritter, *Atlas von Hellas und den hellenischen Kolonien*, 1840-6, estab. his reputation as a cartographer of anct hist. From 1845 to 1852 he acted as director of the geographical institute at Weimar, and in 1859 was appointed prof. of geography at Berlin. He travelled in the E. Mediterranean and the E. His works include *Historisch-geographischer Atlas der alten Welt*, 1848, the famous *Atlas antiquus*, 1854, *Lehrbuch der alten Geographie*, 1877-8, and *Leitfaden der alten Geographie*, 1879 (Eng. trans., 1881). See P. de Chikhachey, *Reisen in Kleinasien und Armenien*, 1847-1863. His son Richard K., 1846-1915, educ. at Jena Univ., was also a noted cartographer, his chief individual work being his Special Map of Asia Minor. From 1874 for some years he was occupied in completing Baron von Richtofen's atlas of China (see RICHTOFEN, FERDINAND, BARON VON). He also prepared maps from the information given by Heinrich Barth, Möllendorff and other Ger. travellers. From 1875 to 1887 he was editor of the geographical magazine, *Globus*.

**Klaring**, see BLEACHING.

**Kierkegaard, Søren Aaby** (1813-55), Dan. philosopher, b. Copenhagen. He graduated in 1840 at the univ. of his native tn, and then travelled for 2 years in Germany. His first pub., *Papers of a Still Living Man*, 1838, on Hans Andersen, received little notice, but his *Enten—Eller* (Either—Or), pub. in 1843, made his reputation as a great thinker. He also wrote *Stadier paa Livets Vei* (Stages on Life's Way) in 1845, and many other works. In these he examined the fundamental principles of Christianity and discussed aesthetic ideas for the rules of life. In later life he vigorously attacked the practices of the Dan. National Church. K. is numbered among the Christian existentialists, but, unlike Gabriel Marcel (q.v.), does not aspire to a systematic unity of thought. He tells us that from his earliest years he was initiated into a sombre and bitter version of Christianity and that, in view of the pastoral career he at first meant to embark on, he deeply examined the doctrine of the Protestant religion. As a student of theology he was hardly conscientious, leading the easy life of a privileged person, intent on counteracting the wretched confined years of his childhood and therefore frequenting the theatres and cafés, drinking and incurring debt, and realising at the end of it that he 'wanted to shoot himself' (*The Journal*). But he left this 'way to perdition' on 19 May 1838, a conversion which brought him moments of joy as extreme as his moments

of mental anguish, whose excess tended to disturb his mental balance. It is not easy to deduce any system from his prolific writings, even existentialism. God, he concludes, is above moral categories; and this he finds to be true of exceptional individuals, for whom the general rules of morality are no longer valid. These opinions would seem to ally his thought to an essential thesis of the existentialism of Sartre, as also his opinion that subjectivity is truth not only in the sense in which 'I do not know truth except when it becomes life in me, but in a genuinely relativist sense.' In other words, 'consciousness creates out of itself what is true'—essentially part of the existentialist philosophy (see Paul Foulquie, *Existentialism*, 1947). A collected ed. of his works, sev. of which have been trans. into English, was pub. in 1901. See E. L. Allen, *Kierkegaard, his Life and Thought*, 1935; W. Lowrie, *Søren Kierkegaard*, 1938; H. V. Martin, *Kierkegaard, the Melancholy Dane*, 1950.

**Kieselguhr** (Diatomaceous Earth, Trippolte, Guhr), naturally occurring deposit composed largely of the siliceous remains of small plants known as diatoms. Usually contains 70-80 per cent of SiO<sub>2</sub>, together with some organic matter, water, and oxides of metals like iron and aluminium in small quantities. K. is a bad conductor of heat, has a low density, and above all is capable of absorbing liquid such as nitroglycerin (see DYNAMITE), petroleum, and acids.

**Kiev** (Ukrainian Kyiv; Russian Kiyev): 1. Oblast in central Ukraine, on both banks of the Dnieper, lowland in the N. (see POLES'YE) and E., upland in the SW.; it has large peat deposits. Coarse grain, flax, and potatoes are grown in the N., wheat and sugar-beet in the S., and vegetables in K. metropolitan area; there is also cattle- and hog-raising. There are food, light, and engineering industries. The area was the core of the medieval K. principality and of the Kievan state (see KIEVAN RUSSIA); it became Lithuanian in 1362. Polish in 1569, and Russian partly in 1667 and partly in 1793. Pop. about 2,500,000, mostly Ukrainians (before the war also many Jews).

2. Cap. of the above and of the Ukrainian Rep., directly subordinated to the gov. of the rep.; it is one of the main economic and cultural centres of the Soviet Union, and one of the oldest and most beautiful Russian cities, called in the chronicle 'mother of the Russian towns.' It is situated on the high r. b. of the middle Dnieper. There are large and diverse engineering industries (equipment for food, woodworking, and light industries, for printing establs., shops, offices, hospitals, laboratories, etc.; also riv. vessels, wagons, motor-cycles, chemical and electro-technical equipment, machine tools); there are also light, food, and polygraphic industries, and a natural gas pipeline runs from Dashava (q.v.). K. is an important transportation centre (4 railway trunk lines, a riv. port, and an airport). Academic institutions include the



**Ukrainian Academy of Sciences** (founded 1918 under Hetman Skoropads'kyi—see UKRAINIAN HETMANS); a univ. (founded 1805 as a Polish lyceum in Kremenets, in Volhynia, transferred to K. and opened as a univ. in 1834, abolished in 1920, and re-estab. in the 1930's); a polytechnic institute (founded 1898); a conservatoire (founded as a musical school 1868, transformed 1913); and many other higher educational and research establs. There are also an opera and ballet theatre (founded 1867, Ukrainian since 1926); a Russian drama theatre (founded 1891); and many museums, including what was formerly (till 1926) the K. Cave Monastery. K. is a treasury of medieval Russian and of Ukrainian architecture. The most famous buildings of the 10th–12th cents. are the Desyatinnaya Church (foundations), the cathedral of St Sophia with many mosaics and frescoes, the remnants of the Golden Gate, and K. Cave Monastery; those of the 17th–18th cents. in the so-called Ukrainian Baroque style include the cathedral of St Nicholas and sev. buildings in the Cave Monastery; in the Rococo style are the bell-tower of the St Sophia Cathedral, St Andrew's Church, and the former Theological Academy. Askold's Grave is in the 19th-cent. Empire style, the univ. is classical, while the cathedral of St Vladimir is an example of pseudo-Byzantine architecture. Some of the most valuable architectural monuments have been destroyed by modern vandals: the 12th-cent. Archangel Michael's Monastery by the Bolsheviks in the period of 'militant atheism'; the 11th-cent. cathedral of the Assumption during the Ger. occupation in 1941.

Continuous existence of the city can be traced from the 8th cent. In the 9th cent. K. became cap. of the Polyane tribe and of the Kievan state. Ruined by Tartars in 1240, it became Lithuanian in 1362, Polish in 1569, and Muscovite in 1654. K. was prov. cap. (1797) and the seat of the governor-general of the SW. region; in 1917–19 it was the seat of various ephemeral Ukrainian nationalist govs. (see UKRAINE, THE, *History*), and from 1934 has been the cap. of the Ukrainian Soviet Rep. K. was occupied by the Germans in 1918 and 1941–3, and by the Poles in 1920; it changed hands sev. times during the Russian Civil War and was the scene of bitter fighting in 1941 and 1943. Lying on the trade route from Scandinavia to Byzantium, K. was a great commercial centre in the 10th–12th cents. In the 14th cent. it recovered from the Tartar devastation, and in 1499 received municipal autonomy according to the Magdeburg Law (abolished 1833). The commercial importance of K. grew steadily, particularly after the transfer in 1797 to K. from Dubno of the ann. Contract Fair; in the 19th cent. it was the main commercial centre of S. Russia (mostly agric. products, particularly sugar); by contrast there was comparatively little industry before the 1930's. The first tramway in Russia was built in

K. in 1898. K. is the historical centre of Russian and Ukrainian culture. Christianisation of Russia began with the christening of K.'s inhab. in 988; it was the centre of the Russian Orthodox Church till 1299, and the religious and cultural centre of the Russian (Ukrainian and Belorussian) pop. in Lithuania and Poland in the 14th–17th cents. (K. College founded 1615, transformed into Academy 1689, into Theological Academy 1810, abolished after 1917). In the 19th cent. K. was a centre of the Ukrainian literary and national movement, of Populism (q.v.), and later of Social Democracy. Pop. (1956) 991,000 (first in the Ukraine and third in the U.S.S.R.; 1897, 248,000; 1917, 576,000; 1920, 366,000; 1926, 514,000; 1939, 864,000), Russians, Ukrainians, and Jews. See guide-book in English. *Kiev*, 1956.

**Kievan Russia**, medieval Russian state which existed from the 9th to the 13th cent. It embraced all E. Slav and some neighbouring Finnish tribes and was ruled by the princes (later Grand Princes) of the house of Rurikidae (q.v.). The most outstanding rulers of K. R. were the Princess Olga, who became a Christian and a saint of the Russian Church; Svyatoslav who routed the Khazars (q.v.); St Vladimir, who in 988 christianised the country; Yaroslav the Wise (1019–54), so called for his legal code, the first of its kind in Russia; and Vladimir Monomach (1113–25), who for a short time succeeded in stopping the feuds between the descendants of Yaroslav's sons, among whom Yaroslav had divided the country. Continuing feuds after his death were among the chief causes of the disintegration of K. R. and the rise of regionalism (see GALICIA and VOLHYNIA, KINGDOM OF; NOVGOROD; VLADIMIR). There were other causes, economic and political. Situated on the great trade routes from Scandinavia to Byzantium, and from W. Europe to central Asia, K. R. had taken an active part in international trade, and sev. of her tns, including Kiev (cap.), Novgorod, and Smolensk, developed into important commercial centres. But the Crusades changed the pattern of world trade, and the economic ties with K. R. were greatly weakened. Different trends of social and political development in the main regions—growth of the power of the prince in Vladimir, of the *veche* (q.v.) in Novgorod, and of the *boyars* (q.v.) in Galicia—contributed to the process of disintegration. The Mongol conquest of 1237–40 (see BATU) put an end to K. R. The 'gathering of Russian lands' which had belonged to K. R. was an important element in the policies of the Tsars of Muscovy, and of the Russian Imperial and even the Soviet Govs., and was not finally completed until the 1940's. See G. Vernadsky, *Kievan Russia*, New Haven, 1948, and B. D. Grekov, *The Culture of Kiev Rus*, Moscow, 1949.

**Kikinda** (or Velika Kikinda: Hungarian Nagyikinda), in Serbia, Yugoslavia, in the autonomous prov. of Vojvodina (q.v.). It is a railway junction, and

has a trade in wheat and fruit. Pop. 28,000.

**Kikuyu:** 1. Dist. of the Central Prov., Kenya Colony. It contains Mt Kenya (q.v.). Also the name of a place where there is a Presbyterian mission station, 20 m. N. of Nairobi. The surroundings are much cultivated, sweet potatoes, maize, millet, beans, and wattle predominating.

2. Name of an important Bantu people of Kenya, numbering about 1 million. They have no traditional centralised political organisation. Clan elders exercise considerable authority within their own clan groups, and political authority generally is in the hands of councils consisting of elders, each council being effective only within a small area. Initiation of all young men and girls takes place, the initiates first becoming warriors, and later becoming junior elders and then senior elders. They are mainly an agric. people, cultivating maize as a chief crop, and these days also work for Europeans on farms and in the towns. The basic unit of K. is the large family group living on its own plot of land called *githaka*, an area originally acquired by the initial clearing of the indigenous forest. There is to-day much soil erosion and overcrowding, with pop. densities of 1000 per sq. m. in some parts, and outright sale of land is practised, a rare phenomenon in Africa. Land grievances have played a large part in the relations of the K. with Europeans which culminated in the Mau Mau outbreak (q.v.), a revolt couched largely in terms of an atavistic religious revival. The gov. is trying to resettle the K. in large new vills. and to re-establish the system of chiefs and local administration, which was destroyed by the Mau Mau. See W. S. and K. Routledge, *With a Pre-historic People*, 1910; C. W. Hobley, *Bantu Beliefs and Magic*, 1922; *Report of the Kenya Land Commission*, Cmd. 4556, 1934; L. S. B. Leakey, *Mau Mau and the Kikuyu*, 1952; J. Middleton, *The Kikuyu and Kamba of Kenya*, 1953; J. Kenyatta, *Facing Mount Kenya*, 1953; H. E. Lambert, *Kikuyu Social and Political Institutions*, 1956; Lord Hailey, *An African Survey*, 1957. See KENYA COLONY.

**Kilauea**, Mt, see HAWAIIAN ISLANDS.  
**Kilbarhan**, tn in Renfrewshire, Scotland, 5½ m. W. of Paisley. It has paper-making industries, and is noted for its hand-woven tartans. Pop. 3400.

**Kilbirnie**, tn in Ayrshire, Scotland, 17 m. WSW of Glasgow. Its chief industries are iron and steel works, cotton and linen, and fishing-net manufs. Pop. 1625.

**Kilbowie**, see CLYDEBANK.

**Kilbride:** 1. East, tn in Lanarkshire, Scotland, 6 m. S. of Glasgow, now being developed as a new tn with a target pop. of 45,000. There are various types of engineering works. Pop. 15,000.

2. West, vill. and par. of Ayrshire, Scotland, 4 m. NNW of Ardrossan. Pop. 5000.

**Kilburn**, dist. on the NE. edge of the co. of London, partly in the bor. of Hampstead and partly in the bor. of

Willesden, Middx, the div. being the Edgware Road. There was an important priory here in the Middle Ages, and in the 18th cent. it was a spa with sulphureous springs.

**Kilohumin**, see FORT AUGUSTUS

**Kildare:** 1. Co. in the Rep. of Ireland, situated in the prov. of Leinster. It is bounded on the E. by Dublin and Wicklow. It contains an extensive plain, part of which forms the Bog of Allen. Its prin. rivs. are the Boyne, Liffey, Barrow, and Lesser Barrow. The dist. of the Curragh in the centre of the co. is most fertile and affords excellent pasturage. Potatoes, oats, and barley are very extensively cultivated. The chief tn is Naas. Area 654 sq. m.; pop. 66,426.

2. Mkt tn in Co. K., founded by St Brigid in AD. 470. K. is the centre of the Irish horse breeding and training industry, and the national stud is at Tully. Pop. 2300.

**Kilfinane**, dairy tn of co. Limerick, Rep. of Ireland, noted for the anct earthworks in the vicinity (Cush and Ardpatrick). Pop. 750.

**Kilian**, or Chilian, St (fl. AD 700), Irish missionary bishop and apostle of Frania, who preached to the heathen of Würzburg, and was put to death by Duke Gozbert. His festival falls on 8 July. See J. O'Hanlon, *Lives of Irish Saints*, 1875-1904 (vol. vii).

**Kilid Bahr**, see DARDANEELES.

**Kilimane**, see QUILIMANE.

**Kilimanjaro**, mt mass in the N. of Tanganyika Ter., situated between Lake Victoria and the coast, 3° S. of the equator. The highest mt in Africa, it culminates in 2 peaks, Kibo (19,565 ft) and Mawenzi (16,892 ft), which are both craters of extinct volcanoes. The crater of the former is 6500 ft in diameter, and 650 ft deep. The mt was first climbed in 1889 by Dr Meyer and Herr Purtscheller; the ascent was first made by Englishmen when Mason and Gillman climbed Kibo in 1921. New Moshi, to the SE., is the nearest settlement, and the first part of the ascent from there is easy through bush and some cultivated land—coffee is grown on the SW. slopes. From 6000 to 10,000 ft is the forest belt, some 5 to 7 m. wide; grasslands extend about 3000 ft. above that, and then there are glaciers and snow, descending, owing to warm air-currents, much lower on the SW. than on the N. There is a native irrigation system on Mt K. See Sir H. Johnston, *An Expedition to Kilimanjaro*, 1893, and C. Dundas, *Kilimanjaro and its People*, 1924.

**Kilinyaga**, see KENYA, MOUNT.

**Kilkee**, seaside resort on the W. coast of co. Clare, Rep. of Ireland, 58 m. from Limerick. Pop. 1700.

**Kilkeel**, fishing port of co. Down, N. Ireland, at the foot of the Mourne Mts. Pop. 2350.

**Kilkenny:** 1. Co. in Leinster, Rep. of Ireland, is bounded N. by Leth. co., E. by Carlow co. and Wexford co., S. by Waterford co., and W. by Tipperary. Its chief rivs. are the Suir, Barrow, and Nore, which rise in the Slieve Bloom Mts., and

flow into Waterford Harbour. Anthracite coal is obtained from the Castlecomer basin. The climate is agreeable and mild. Cattle trading is carried on, and potatoes and turnips are largely cultivated. Area 796 sq. m.; pop. 66,683.

2. The cap., on the R. Nore, is divided into 2 dists., Kinglishtown and Irishtown. The cathedral of St Canice dates from 1255, and is built partly in Early Eng. style. The ruins of a Dominican and of a Franciscan monastery still exist, also the Protestant College of St John, where Swift and Bishop Berkeley received part of their education. Pop. 10,570. See C. P. Meehan, *Confederation of Kilkenny*, 1905.

Kilkhampton, vil. and par. of Cornwall, England, 6 m. from Bude, with a par.

connects with the middle and lower lakes by means of the Long Range, a channel 2½ m. long. Places of especial beauty and historic interest are the Macgillcuddy Reeks, the Torc and Purple Mts. and the famous gap of Dunloe. The Innisfallen ruins, Muckross Castle, and Aghado church are other noteworthy features. Pop. 6300. See M. Gorges, *Killarney*, 1912, and J. C. Coleman, *The Mountains of Killarney*, 1948.

Killer-whale, or Grampus (corruption of the Fr. *grand poisson*, Norman *grapots*, Sp. *gran pes*, It. *gran pesce*), a toothed whale which is to be found in most seas of the world. It belongs to the Delphinidae or dolphin family, and is the only cetacean which preys upon its own kind,



British Railways

UPPER LAKE, KILLARNEY

church associated with the Grenville family, part Norman and part Perpendicular in style. The S. doorway is particularly fine Norman work, and there are many carved bench-ends of the 15th and 16th cents. Pop. 860.

Killala, small tn in co. Mayo, Rep. of Ireland, which dates back to the 5th cent. The French landed there in 1798. Pop. 900.

Killaloe, cathedral tn in co. Clare, Rep. of Ireland, on R. Shannon, 17 m. from Limerick. It was the former seat of the High King of Ireland, and is renowned for its beautiful scenery. Pop. 900.

Killarney, mkt tn and favourite resort for tourists, situated in the co. of Kerry, Rep. of Ireland. The lakes of K. are 1½ m. from the tn, and are shut in by wood-crowned mts. The lower lake, called Lough Leane, is dotted about with wooded is., the most important one being named Ross Is.; another isle contains the beautiful ruins of the abbey founded by St Finian the leper. Muckross Abbey, which was built by the Franciscans about 1440, divides the lower lake from the middle or Torc lake. The upper lake

the porpoise, dolphin, and whale, and also on seals and sea birds. It is enormously strong and very voracious. Its special characteristics are the rounded head, conical teeth, and high dorsal fin. The adult male measures from 20 to 30 ft long, and is more than 10 ft in girth. The upper part of the body is black, changing to white on the under surface and on part of the sides. It sometimes appears in herds numbering hundreds.

Killiecrankie, Pass of, in Porthshire, Scotland, in the valley of the Garry, extends from K. station 1½ m. to Garry Bridge. On the plain at the top of the pass Viscount Dundee defeated the troops of William III under Mackay in 1689, and received his death wound.

Killigrew, Thomas (1612-83), dramatist, b. London, the son of Sir Robert K., vice-chamberlain to Queen Henrietta Maria. He was page to Charles I in 1633. His play, *The Parson's Wedding*, was popular before the Civil war, after the outbreak of which he resided abroad with the Eng. court. At the Restoration he returned and was appointed groom of the bedchamber by Charles II. He built

a theatre where Drury Lane Theatre now stands, and there produced many plays, including some of his own composition. His works were collected and pub. in 1664. See A. Harbage, *Thomas Killigrew, Cavalier Dramatist*, 1930.

**Killigrew**, Sir William (1607-95), playwright, eldest son of Sir Robert K. and brother of Thomas K. (q.v.). He was gentleman usher to Charles I. and had command of a troop which guarded the king's person during the Civil war. He pub. *Three Plays, viz. Selindra, Pandora, Ormasdes*, 1665, and various pamphlets concerned with the unsuccessful attempts to drain the Lincs fens, 1647-61.

**Killiney**, seaside resort, 10 m. SE. of Dublin, Rep. of Ireland. K. Hill is a noted beauty spot. Pop. 800.

**Killiz**, Killis, or Kalls, tn of Turkey on the Syrian frontier, 50 m. from Aleppo. It is noted for its olive groves, which produce very fine oil. Pop. 30,000.

**Killorglin**, vil. in co. Kerry, Rep. of Ireland, 16 m. S. of Tralee, the scene of the famous 'Puck Fair,' where a puck goat is enthroned annually from 10 to 12 Aug. Pop. 718. See FAIR.

**Killybegs**, coastal tn of co. Donegal, Rep. of Ireland, 17 m. W. of Donegal. It is an important centre of the fishing industry with a fine natural harbour. K. is famous for hand-made carpets. Pop. 1000.

**Killyleagh**, seaport on Strangford Lough, co. Down, N. Ireland, 6 m. from Downpatrick. K. Castle is in the vicinity. Sir Hans Sloane, founder of the Brit. Museum, was b. here. Agric. produce is exported, and the manuf. of linen and suede leather are the prin. industries. Pop. 1600.

**Kilmahnam**, W. suburb of Dublin, Rep. of Ireland. It contains the co. jail in which Parnell, O'Brien, and other political prisoners were held, and a military hospital. Pop. 11,000.

**Kilmallock**, mkt tn of co. Limerick, in the Golden Vale of the earls of Desmond. Pop. 1100.

**Kilmarnock**, municipal burgh in Ayrshire, Scotland, situated on K. Water, a trib. of the Irvine, 24 m. SW. of Glasgow. The Burns Memorial, a museum in Kay Park, contains sev. MSS. of the poet. K. is noted for its woollen manufs., and also for the manuf. of lace, carpets, boots and shoes, and china and earthenware. There are important engineering and machinery works. Pop. 42,120.

**Kilmer**, Alfred Joyce (1886-1918), Amer. poet, b. New Brunswick, New Jersey. Educ. at Rutgers College and Columbia Univ., he taught Latin for a year, then joined the staff of the *Standard Dictionary*, and subsequently held editorial posts on the *Churchman*, the *Literary Digest*, and the *New York Times*. Enlisting as a private in the First World War, he was killed in action and posthumously awarded the Croix de Guerre. His first book of poems, *Summer of Love*, appeared in 1911, but his best-known poem, 'Trees,' printed in 1913, was the title-poem of a vol. pub. in the following

year. *The Circus and Other Essays* appeared in 1916, and *Main Street and Other Poems* in 1917. In 1918 his works were ed. with a memoir by R. C. Holliday.

**Kilmuir**, David Patrick Maxwell Fyfe, 1st Viscount (1900- ), lawyer and politician, educ. at George Watson's College, Edinburgh, and Balliol College, Oxford. He was called to the Bar in 1922; Q.C. 1934. From 1935 to 1954 K. was M.P. for the W. Derby div. of Liverpool. He was solicitor-general, 1942-5, and attorney-general, 1945. In 1945-6 he was deputy chief prosecutor at the Nuremberg War Crimes Trials. When the Conservatives returned to power in 1951 K. became home secretary and minister for Welsh affairs. In 1954 he was created a viscount, and became lord chancellor in succession to Lord Simonds (q.v.).

**Kiloat**, see KILWA KISIWANI.

**Kilogram**, see METROLOGY.

**Kilometre**, see METROLOGY.

**Kilowatt**, measure of electrical power equal to 1000 watts. See METROLOGY; POWER; UNITS, ELECTRICAL.

**Kilpatrick**, Old or West, tn in Dunbartonshire, Scotland, on the R. Clyde, 10½ m. NW. of Glasgow. It is supposed to have been the bp. of St Patrick, and has remains of the Rom. Antonine Wall. Pop. 3227.

**Kilpinen**, Yrjö (1892- ), Finnish musician and foremost *lieder* composer of N. Europe. He has been a member of the Academy of Finland since 1948, and devotes himself entirely to composing.

**Kilpisjärvi**, Finnish lake and tourist resort on Enontekiö, where the frontiers of Finland, Sweden, and Norway meet in Alpine surroundings.

**Kilrenny**, see ANSTRUTHER.

**Kilronan**, see ARAN ISLANDS.

**Kilrush**, seaport on the estuary of the R. Shannon, co. Clare, Rep. of Ireland. It is noted for its fisheries and flagstone quarries, and there is also considerable trade in grain and timber, as well as an export of peat, kelp, hay, and stone. K. has furniture and seameal products. There is a good harbour. Pop. 3300.

**Kilsyth**, burgh of Stirlingshire, Scotland, 13 m. from Glasgow, and scene of a battle between Montrose and the Covenanters in Aug. 1645; the former's victory gained him temporary domination of Scotland. Wm Chalmers Burns inaugurated a religious revival here in 1839. Industries include coal-mining and hosiery. Pop. 10,000.

**Kilit**, see HIGHLAND DRESS.

**Kilwa Kisiwani**, is. and tn of Tanganyika; formerly known to the Portuguese as Quiloa and to the Arabs as Kiloat, it was a very important Arab trading station, with a fine harbour from which a well-defined track leads to Manda, on Lake Nyasa. The old tn was founded by Prince Ali Ibn Hassan, a Persian, in 957, and many ruins show the importance of the settlement. Ibn Batuta, writing in 1331, called it 'the most nobly built city on earth.' K. K. was captured by the Portuguese in 1505. The mainland opposite is fertile and well populated.

**Kilwinning**, municipal burgh of Ayrshire in Scotland, on the r. b. of the Gar-nock, about 25 m. SW. of Glasgow. The tn derives its name from St Wimin, who lived there in the 8th cent. A famous abbey was raised to his memory by Hugh de Morville in 1140. Pop. 6533.

**Kim Van Kieu**, the national poem of Viet Nam (q.v.) composed by Nguyen Du (q.v.) at the beginning of the 19th cent. The K. V. K., written in alternate lines of 6 and 8 feet or words, describes the love of 2 young people, Kim and Kieu, and the adventures and sufferings which they undergo before finally marrying. It reflects the turmoil in Viet Nam during the period of the Tay-Son (see VIET NAM) rebellion and embodies many of the feelings and characteristics of the Vietnamese people. It is known and loved by all Vietnamese.

**Kimawenzi**, see KILIMANJARO.

**Kimberley**, John Wodehouse, 1st Earl of (1826-1902), statesman, b. Wymond-ham, Norfolk, and educ. at Eton and Christ Church, Oxford. He held office in Lord Palmerston's first and second govts., and was Brit. minister at St Petersburg, 1856, and under-secretary for India, 1864, becoming lord-lieutenant of Ireland the same year, and in consequence of the work of pacification which he accomplished while holding this office was created Earl of K. In 1868 he was lord privy seal in Gladstone's first administration, and in 1870 succeeded Granville at the Colonial Office. It was during his tenure of this post that the grant of complete self-gov. was given to the Boers, after the Brit. defeat at Majuba Hill, 1881. In 1882 he was transferred to the India Office, and in 1891 was leader of the Liberal party in the House of Lords. Kimberley, S. Africa, is named after him.

**Kimberley**: 1. Cap. and chief commercial centre of the N. Cape, S. Africa, the most important diamond-mining centre of that country. The tn (situated 4012 ft above sea level) is built round about the mining camps, which are scattered. K. is the chief diamond centre of the world; the industry has been placed on a sound basis and at the present time 3 mines are in production. It is also the centre of the largest cattle-ranching area in the country. Diamonds were first discovered by diggers on the farms of Du Toit's Pan and Bultfontein in 1870 (see also HOPETOWN). Further discoveries of diamonds were made in 1871 at de Beers and Colesberg Kopje. Ultimately the mines were placed under Brit. control, when the whole diamond market became vested in 1 company, the de Beers Consolidated Mines Ltd. The diamond industry was badly hit by the First World War, and even more by the slump that followed, the mines at one period being actually closed down. The K. (Diamond) mine, as it was once named, has now for 70 years been empty of men, and all the machinery taken away; it is known to-day as 'the Big Hole,' and is situated just off one of the main streets. Miners sank workings underneath the hole to a

depth of 3600 ft. Diamonds have been found in all sorts of places in K.—in old mine dumps, in back yards, and even in the streets at times; but the finest are those which de Beers are able to show the visitor to the city, a collection worth £1,000,000. The K. of to-day is not the K. of yesterday, for between the wars the city experienced such fluctuations of fortune that many forsook diamonds for the gold of the Rand. Other notable features of K., besides diamonds, are the fine, park-like gardens of Alexanderfontein; the MacGregor museum, where there are some fine models of famous diamonds; some memorial cairns and crosses recalling the Anglo-Boer war; the Honoured Dead memorial to those who fell in the defence of K. during the siege in the S. African war; and the Duggan-Cronin Bantu gallery, housing a collection of photographs of all the native tribes of S. Africa.

K. holds an important position owing to its situation. There has been railway communication with K. from the Cape since 1885. The climate is salubrious, and the soil is fertile, the tn being provided with a good water supply from the R. Vaal. The mining of base metals and minerals in the area is becoming an increasingly important factor in the economic structure of S. Africa. Manganese, iron ore, blue asbestos, gypsum, and salt are some of the minerals being produced on an increasing scale. The construction of sev. large irrigation schemes in the region in recent years has made this one of the chief food production areas in the country. Large quantities of beef, mutton, wheat, maize, ground-nuts, butter, cheese, fruit, and vegetables are produced.

The new civic centre includes a new technical college, art gallery, new law courts and gov. offices, and a new city hall. Provision has been made for facilities for secondary industry. Estab. industries include textile, clothing, and furniture factories, joinery and engineering works, cheese, mineral water, yeast, cement, and bonemegal factories. The tn underwent a siege during the Boer War, 1899-1900, which was relieved by Gen. Sir John French. Pop.: Whites, 21,055; Bantu, 26,760; Coloureds, 13,511; Asiatic, 1103.

2. Gold-field in the K. dist., Australia, 300 m. SE. of Derby.

**Kimbolton**, old mkt tn of Hunts, England, 11 m. W. of Huntingdon. The castle (partly rebuilt by Vanbrugh) was occupied by Catherine of Aragon after her divorce until her death in 1536, and is now used as K. school. The church dates from the 13th cent. Pop. 700.

**Kimbri**, see CIMBRI.

**Kimchi**, David (c. 1160-1235), Jewish commentator, b. Narbonne in France, where he spent his life. His great work was the *Séfer Miklöl*, which consists of 2 parts: the *Miklöl*, or grammar, and the *Séfer ha-Shordakim*, or lexicon. He also wrote commentaries on portions of the Scriptures, of which his commentary on the prophets is the best. His grammar and lexicon have been the basis of subsequent

Heb. grammars and lexicons. See L. Finkelstein, *The Commentary of David Kimchi on Isaiah*, 1926; W. Windfuhr on the *Commentary on Nahum*, 1927; H. Cohen on the *Commentary on Hosea*, 1929.

**Kimmeridge Clay**, geological name of a group of Upper Jurassic beds, named after the Dorset vil. of K. where they are clearly seen. The term Kimmeridgian is applied to rocks formed at the same time as the K. C. (see JURASSIC SYSTEM). The upper part of the K. C. consists of dark blue bituminous shales, and the lower part of clays and shales in which calcareous concretions are found. It continues from the Dorset coast into Wilts, and thence along the Jurassic outcrop into Yorks. The economic products of the formation include alum, and clay for the making of bricks, tiles, etc. Fossils are abundant in both series of the formation, including remains of dinosaurs, plesiosaurs, and ichthyosaurs.

**Kin, Next of, or 'nearest of consanguinity,'** in the same degree of relationship are those among whom is distributed the personal property of a person who dies wholly or partially intestate as to that property. As a general rule the right to take out administration to the personal effects of an intestate follows the beneficial right to the property. Since the Administration of Estates Act, 1925, the devolution of real property has been assimilated to that of personalty. (For the order in which the representatives take see SUCCESSION, INTERSTATE.) A husband has the exclusive right of taking out letters of administration to his wife's estate, and if he dies without doing so the wife's next of K. may take out administration, but they will hold the beneficial interest in the property for the husband's personal representatives. Where none of the K. will take out administration a creditor is entitled to do so. A gift, whether in a deed or will, to the 'next of K.,' whether *simpliciter*, or with reference to the Statutes of Distributions, or to intestacy, does not include a wife or husband. The phrases 'next of K.,' and 'next of kin according to the statutes,' as frequently used in gifts under deeds and wills are to be distinguished. The former is strictly confined to the literal meaning of the words, but the latter includes those who, not actually next of K., represent deceased next of K. See Goodeve's *Personal Property*. See also INTERSTACY.

**Kincardine, or Penetangore**, tn of Bruce co., Ontario, Canada, situated on Lake Huron. It has iron foundries and salt works. Pop. 2662.

**Kincardineshire, or The Mearns**, maritime co. in the NE. of Scotland, lying between the R.s Dee in the N. and the N. Esk in the S. The surface is mountainous, the highest peak being Mt Battock, 2555 ft, but in the N. the co. slopes into the valley of the Dee and in the S. into the Howe of the Mearns (a continuation of Strathmore). In the mountainous region are grouse moors, but in the valley of the Dee and the Howe of the Mearns and the sea coast, the most fertile part, agriculture

flourishes, prin. crops being oats and barley, turnips and potatoes. Cattle-rearing and fishing, especially salmon fishing, are carried on, and there is some shipping at Stonehaven, the co. tn. Part of the city of Aberdeen lies in K. With N. Angus, the Mearns returns 1 member to Parliament. Area 379 sq. m.; pop. 28,000.

**Kinck, Hans Ernst** (1865-76), Norwegian novelist and playwright, b. Øksfjord, Finnmark. He spent his childhood in country surroundings, and his novels reflect his interest in the peasant mentality. His use of colourful dialect often makes his style difficult to understand and to trans. His work is influenced by repeated visits to Italy. His best-known works are *Sneskavlens brast*, 1918-19, and the verse play *Driftkaren*, 1908. See D. Lea, *H. E. Kinck*, 1941, and A. H. Winsnes, *H. E. Kinck og vår tid*, 1954.

**Kinder Scout** (2088 ft), mt in Derbyshire, England, and the highest point in the Peak dist. (q.v.).

**Kindergarten** comes from the Ger. word meaning children's garden, and was the name chosen by Friedrich Froebel for his children's school, where he evolved the best methods, in his opinion, for the all-round development of children, whom he thought of as being like young plants needing constant loving care and attention to help them to grow. Inspired by the ideals of Pestalozzi (q.v.) and building on his own experience, Froebel elaborated a system of organised occupations by means of 'gifts' calculated to satisfy the child's inborn love of play and fellowship and at the same time to exercise and develop its sensibilities and healthy activities, and to teach it unconsciously something of its duties towards God, Nature, and Man. Froebel's 'gifts'—as they are called—which were used in this system of education, have long fallen into disuse in this country, as also have most of the occupations which accompanied them, but the underlying principles of Froebel's educational philosophy are still the basic principles in the progressive K.s of to-day. Like the anc. Greeks, Froebel was fully alive to the value of rhythm in speech and music. Training in speech and music, together with movement, forms an important part of any child's education in a K. today, where a child is regarded as a growing person to be respected and studied, and where self-activity is the keynote of its education. Learning as far as possible is attained through doing wholeheartedly the play and work that is appropriate to the age of the child. This includes the acquisition of techniques and essential skills when the time is ripe for them, and after careful previous preparation through a number of varying experiences and different media. The aim of the discipline imposed is the attainment of self-discipline. The acquisition of this is necessarily slow, and the child requires not only sympathetic help for its growth, but the right environment where it can experience responsibility suitable to its stage of development where it learns to recognise

the value of social service, and where co-operation between the home and school is of the first importance. Froebel early recognised the responsibilities of the teacher who attempted to carry out his ideas, and for this purpose advocated the careful training of these teachers of children. One direct result of this is seen today in the primary training colleges, and in the teacher's certificate A, the trainer's diploma and handwork diploma awarded by the National Froebel Foundation. The Ministry of Education recognises this certificate after the teachers have been trained at one of the recognised colleges. A list of all the Froebel training colleges can be obtained from the National Froebel Foundation, 2 Manchester Square, London, W.1. The principles of Froebel met with no very wholehearted appreciation in his country, but Germany does not stand alone in rejecting her own prophet. K.s. flourish best in America. The National K. Association was founded in 1909 in New York in order to bring the advantages of K. education to all the nation's children, and in 20 years' time it had secured the estab. of nearly 1400 K.s. See also CHILD STUDY; EDUCATION; FROEBEL, FRIEDRICH WILHELM AUGUST; INFANTS' SCHOOLS; MACMILLAN, RACHEL; MONTESSORI, MARIA; NURSERY SCHOOLS.

**Kinderscout Grit**, geology, a variety of the Millstone Grit overlying the Carboniferous Limestone. It takes its name from Kinder Scout (q.v.), a summit of the Peak dist. The formation consists of shales, grits, and sandstones, and is coarser and harder than the millstone grits in general. Though not yielding such good building stone as the other sandstones of Derbyshire, it is quarried for such purposes as foundations, etc., where its disadvantages as regards dressing need not be apparent.

**Kinematics**, branch of the science of mechanics, in which the phenomena of motion are considered without reference to any force or mass. K. is usually treated as a study preliminary to that of dynamics, and involves only the conceptions of space and time. By making a few simple assumptions, it is possible to formulate certain relationships which can afterwards be examined in the light of dynamical knowledge.

The *velocity* of a point in a given direction is defined as the rate of change of its displacement in that direction. The velocity is said to be *uniform* if the point traverses equal distances (in the same direction) in equal intervals of time, however small those intervals may be. In such a case the velocity of the point is

given by the equation  $v = \frac{s}{t}$ , where  $s$  is the distance traversed in the time  $t$ . In the case of non-uniform velocity we define the velocity *at a point* as the average velocity over a very short distance enclosing the

point, i.e.  $v = \frac{\delta s}{\delta t}$ . Velocity is a vector quantity, i.e. it has direction as well as magnitude. *Speed*, a scalar quantity, is

defined in the same way as velocity but without reference to direction, and therefore has magnitude alone. Acceleration is the rate of change of velocity; if a body has an initial velocity of 5 ft per sec., and that velocity is increased by 2 ft per sec. every sec., its velocity at the end of successive secs. will be 7, 9, 11, 13 . . . ft per sec. The final velocity at the end of any period may be measured by the relation  $v = V + ft$ , where  $V$  = initial velocity in, say, ft per sec.,  $f$  = acceleration in ft per sec. per sec.—that is, the number of velocity units added on per sec.—and  $t$  = number of secs. The average velocity during the period, if the acceleration be uniform, may be taken as the velocity at the middle of the period; that is it will be the mean of the initial and final velocities. Average velocity therefore =  $\frac{V+v}{2}$ ; that is,  $(V+V+ft) \div 2$ , or,  $V + \frac{1}{2}ft$ .

Now, the length traversed by a body moving with uniformly accelerated velocity would be the same as if it moved uniformly with the average velocity throughout the period. Therefore we have, in this case,  $s = (V + \frac{1}{2}ft) \times t$ , or  $s = Vt + \frac{1}{2}ft^2$ . Eliminating  $t$  between the equations  $v = V + ft$  and  $s = Vt + \frac{1}{2}ft^2$ , we get a third equation,  $v^2 - 2fs = V^2$ . We now have certain relationships of space and time expressed concisely by formulae, which may be recapitulated thus: for uniform velocity,  $s = vt$ ; for uniformly accelerated velocity,  $v = V + ft$ ,  $s = Vt + \frac{1}{2}ft^2$ ,  $v^2 = V^2 + 2fs$ . The acceleration of a body falling freely in vacuo is an example of uniformly accelerated motion,  $f$  being 32.2 ft per sec. per sec. In the case of non-uniformly accelerated motion, the acceleration

*at a point* is defined as  $\frac{\delta v}{\delta t}$ , where  $\delta v$  is the increase in velocity in a short interval  $\delta t$ , in the vicinity of the point in question. As in the case of velocity, acceleration is a vector quantity; it is completely specified only when its direction and magnitude are known.

K. also deals with the direction in which motion takes place, and the determination of the resultant of sev. velocities possessed by a particle. All motion, of course, is relative; and it may be the purpose of a problem to determine the motion of a body with reference to a certain body or surface, as, for instance, the surface of the earth (see DYNAMICS and KINETICS).

**Kinematograph**, see CINEMATOGRAPH.

**Kineshma**, tn in central Russia, on the Volga, in the Ivanovo oblast. It is an important transportation centre (transfer from water to railway and vice versa) and an old industrial town (textiles). Known since 15th cent. Pop. (1956) 84,000 (1926, 34,000; 1939, 75,000).

**Kinetic Theory**, in chem. and physics, assumes that the molecules of a gas are in constant and rapid motion, and that they behave as perfectly elastic objects. On this theory, the laws that describe the behaviour of gases under variation of temp. and pressure, etc., find a satisfactory theoretical explanation. The K. T. in its

present form is due to many scientists, notably Joule, Clausius, and Clerk-Maxwell (about the middle of the 19th cent.). See GAS AND GASES.

**Kinetics**, branch of the science of mechanics which considers the action of forces in producing or changing the motion of a body. If the body remains in a position of rest or equilibrium, the consideration of the conditions is a part of *statics*, or the science of equilibrium of forces. This div. of the study of forces into 2 parts according as they produce motion or equilibrium is an arbitrary one. The laws of statics are merely special cases of the laws of dynamics in which the acceleration and the velocity of the body are zero. It is convenient, however, to treat of certain particular deductions from Newton's laws of motion under the heading of K.

**Kinematics** (q.v.) treated of motion without regard either to the nature of the moving body or to the cause of change of motion. K. introduces the considerations of mass and force. Newton's first law, which states that change of motion is caused by forces acting upon a body, gives us, therefore, a definition of force. The law may be otherwise stated as 'a material body possesses inertia.' The second law states that the change of motion is proportional to the impressed force and takes place in the direction of that force. By motion is meant momentum, which is measured by the product of the body's mass and its velocity. Force is measured, therefore, by consideration of the mass of the body and the acceleration or change of velocity induced by the force. This gives us the fundamental relationship of  $K = mf$ , which may be concisely stated thus:  $K = mf$ ; that is, force = mass  $\times$  acceleration. The unit of force is called the *poundal* in the F.P.S. system (see PHYSICAL UNITS AND DYNE) and is defined as that force which, acting on a mass of 1 lb. for 1 sec., gives it an additional velocity of 1 ft per sec. in the direction of the force. Newton's third law of motion states that action and reaction are equal and opposite, i.e. if a body A exerts a force on a body B, then B simultaneously exerts an equal and opposite force on A. A force may not cause actual motion, but it always tends to do so. If the point of application of the force moves in the direction in which the force acts, the force is said to do *work*. Work is measured by the distance through which the point of application moves in the direction in which the force acts, multiplied by the magnitude of the force. The unit of work in the F.P.S. system is that amount of work done by a force of 1 poundal by moving its point of application 1 ft; it is called a foot-poundal. A body may have the capacity of doing work by virtue of the momentum it possesses, or through its position or configuration; it is then said to possess *energy*. Energy possessed by virtue of motion is called *kinetic energy*; that possessed by virtue of the position of a body, as in a weight supported above the ground, or

through the position of its parts, as in a coiled watch spring, is called *potential energy*. The work done in bringing a moving particle to rest can be shown to be  $\frac{1}{2}mv^2$ ; this is therefore defined as the kinetic energy of a particle of mass  $m$ , moving with a velocity  $v$ . If a body whose weight is  $W$  is raised through a vertical height  $h$ , the work done against the mutual attraction of the earth and the body is  $Wh$ . This is the measure of the increase of the potential energy of the body in its new position. See DYNAMICS and KINEMATICS.

**Kinetoscope**, see CINEMATOGRAF.

**King, Edward** (1829-1910), Bishop of Lincoln, educ. at a private school and Oriel College, Oxford. Ordained in 1855, and in 1863 became principal of Cuddesdon Theological College, where he exercised an enormous influence over the ordinands studying under him. In 1873 he became prof. of pastoral theology at Oxford, and in 1885 passed to the bishopric of Lincoln. Here he speedily became a great force and his work was only interrupted by a fruitless attempt by the Church Association to secure his condemnation for the use of certain ceremonies (see LINCOLN JUDGMENT). See B. W. Randolph and J. W. Townroe, *The Mind and Work of Bishop King*, 1918.

**King, Henry** (1592-1689), Bishop of Chichester and poet, educ. at Westminster School and Christ Church, Oxford. In the year that he was made Bishop of Chichester (1642) he was taken prisoner by the parl. army, but was later released. He was a personal friend of Charles I. He pub. a metrical trans. of the Psalter (1651) and some poetry. In one of his poems he makes a reference to *Elkon Basilike* as the work of the king. He was restored to his see at the Restoration. He was one of the executors of John Donne (q.v.).

**King, Peter**, 1st Baron (1669-1734), lawyer and Whig politician, a relative of J. Locke (q.v.). He became recorder of London, and was knighted (1708) Baron King of Ockham; lord chancellor, 1725-1733. He wrote 2 theological works: *An Enquiry into the Constitution of the Primitive Church*, 1691, and *History of the Apostles' Creed with Observations*, 1702. See J. C. Campbell, *Selections from Speeches of Lord King*, 1842, and E. Foss, *The Judges of England*, 1848-54.

**King, Sir Richard** (1730-1806), admiral, b. Gosport. He entered the navy in 1738, and having served in the Mediterranean and E. Indies was promoted to be lieutenant in 1746. In 1756 he was in command of the landing party at the capture of Calcutta and Hugli, and distinguished himself in 1782 in the action off Sadras, after which he was knighted. In 1787 he was promoted to be rear-admiral, in 1792 was created a baronet and appointed governor and commander-in-chief at Newfoundland, and in 1795 was made admiral.

**King, William** (1663-1712), Brit. satirical and miscellaneous writer and poet. A good scholar, he was a supporter of the



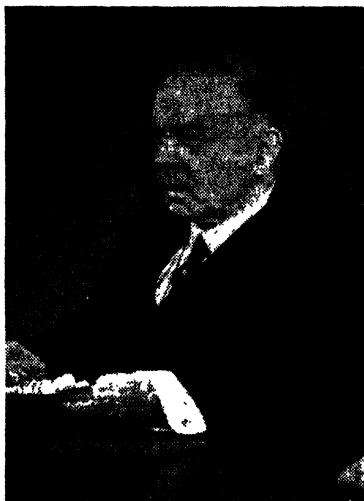
Tory and High Church party. From 1701 to 1708 he held various offices in Ireland. His works include *Animadversions upon the Pretended Account of Denmark*, 1694, in answer to R. Molesworth's pamphlet; *Dialogues of the Dead, Relating to the Present Controversy concerning the Epistles of Phalaris*, 1699, satirising Bentley; *A Journey to London in the Year 1698, 1699; The Transactioneer, with some of his Philosophical Fancies, in Two Dialogues*, 1700, a satire on the Royal Society; *Findication of Dr Sacheverell*, 1711. See J. Brown (ed.), *Remains of the Late Learned and Ingenious Doctor William King*, 1732; J. Nichols (ed.), *The Original Works of William King*, 1776; S. Johnson, *Lives of the Poets*, 1781.

**King, William**, see CO-OPERATION.

**King, William Lyon Mackenzie** (1874-1950), Canadian Liberal statesman; b. Berlin (now Kitchener), Ontario; eldest son of John K., Q.C., and grandson of Wm Lyon Mackenzie, the famous political reformer and rebel. Graduated at univ. of Toronto, 1895; fellow in political economy, Chicago Univ., 1896-7; Harvard, 1897-1900. Became deputy minister of labour for Canada and editor of *Labour Gazette*, 1900; chairman of sev. royal commissions on labour and immigration problems. Represented Canada in negotiations with Great Britain regarding immigration, 1906 and 1908. In latter year entered Dominion Parliament as member for N. Waterloo, Ontario. Beaten in the Liberal overthrow of 1911, he spent the years 1914-18 in the U.S.A. with the Rockefeller Foundation. He was elected member for Prince Edward Is. in 1919; in Aug. of that year he was chosen to succeed Laurier as Liberal leader. In 1921, when he was elected for New York, Ontario, he became Premier in succession to A. Meighen. In the 1925 general election he lost his seat. When he returned to Parliament as member for Prince Albert, Saskatchewan, his advice to the governor-general to dissolve was rejected, and he resigned. Meighen tendered the same advice, which was then accepted—and the Liberals won the 1926 election. K. remained Premier 4 years longer. He attended the Imperial Conferences of 1923 and 1926. In July 1930 the elections went against him, and he was succeeded by R. B. Bennett. When the statute of Westminster (q.v.) was promulgated it was seen that the theories he preferred and enunciated at the Imperial Conference of 1926 had been given practical expression. From the first time he entered public affairs K. realised the need for Canada being united within herself, co-operative within the Commonwealth, and influential within the wider family of nations. In 1935 his party won the most sweeping victory in the hist. of Canadian politics—winning 174 seats out of 250. He thus became Prime Minister for the third time in his career. In the same year he concluded a commercial treaty with the U.S.A. He attended the coronation of King George VI and Queen Elizabeth, 1937.

When Britain declared war on Germany

in 1939, K., by postponing Canada's declaration for a week, in effect affirmed Canada's complete independence in foreign affairs. How far he had succeeded in achieving national unity was only fully realised when the war broke out. He brought a united Canada into the war, and it may be doubted if any other Canadian political leader could have done so. The Canadian achievements in the war under K.'s leadership were impressive. When his Conservative opponents criticised Canada's war effort as inadequate,



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WILLIAM LYON MACKENZIE KING

he sought re-election and gained it decisively—the real issue being conscription, which he consistently opposed. In Aug. 1940 he negotiated with Roosevelt the setting up of a permanent Joint Defence Committee for the defence of the W. hemisphere.

Between 20 Dec. 1921 and 15 Nov. 1948 K. was in office for over 20 years, and no contemporary statesman has held office for so long a time. The period which included his administrations raised Canada to its modern position in world affairs; and in the inter-war period the changes which occurred profoundly altered the country's imperial and international relationships. K. played an important part in bringing about these changes, in fulfilment of a dual policy founded on national autonomy and imperial and international co-operation. He brought to fruition Canadian ideals that had been gradually maturing since confederation was estab., and had been fostered in their time by other Canadian

Premiers, notably by the Liberal Sir Wilfrid Laurier and the Conservative Sir Robert Borden. K. never favoured proposals for executive centralisation of the Empire countries, believing that such an arrangement would not make for unity among them.

He resigned in 1948, being succeeded in the premiership of Canada by Louis St. Laurent, and d. in July 1950. See *Canada and the Fight for Freedom* (speeches—Sept. 1941–June 1944); E. Ludwig, *Mackenzie King: a Portrait Sketch*, 1944; B. Hutchinson, *The Incredible Canadian*, 1953; H. S. Ferns and B. Ostry, *The Age of Mackenzie King*, 1955.

**King, William Rufus** (1786–1853), vice-president of the U.S.A. He was admitted to the Bar in 1806 and entered Congress in 1811. He represented Alabama in the Senate from 1820 to 1844, and was minister to France in 1844, and showed himself an active advocate of the annexation of Texas. In 1848 he was again a senator, ultimately becoming president of the Senate, and in 1852 vice-president of the U.S.A.

**King:** 1. Is. off Australia, lying to the NW. of Tasmania, in Bass Strait.

2. Co. in Washington, U.S.A., bounded on the W. by Puget Sound and Admiralty Inlet. Co. seat, Seattle. It has lumber, clays, coal, fruit, nuts, dairy products, livestock, and truck farming. Pop. 532,922.

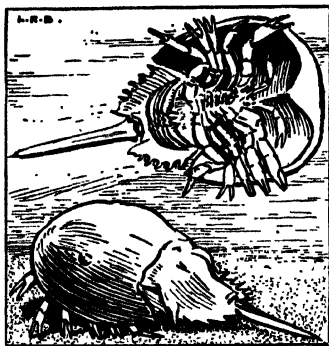
**King (A.-S. *cyning***, man of the tribe, or chief), the man who (actually or nominally) holds supreme power in a state. A reigning queen has equal power, but not a queen consort. See GOVERNMENT; PARLIAMENT; SOVEREIGNTY; and individual K.s and queens.

**King Charles Spaniel**, dog characterised by a large head, its nose almost touching the skull between the eyes; it has very long ears, dark and lustrous eyes. The coat is long and silky, the colour determining the sub-varieties of this breed: black-and-tan, ruby, tri-coloured, or Blenheim (white marked with red). Popularised by King Charles II, the breed has been largely ousted by the introduction of the Pekinese.

**King Charles's South Land**, largest is. of Tierra del Fuego, S. America. It is generally level except in the W., where the highest point, Mt Sarmiento, reaches a height of nearly 7500 ft. See FUEGO, TIERRA DEL.

**King Crab**, name given to any species of the class Xiphosura of the subphylum Arachnida. There are 5 species forming a single family, Xiphosuridae. Formerly these were all included in a single genus *Limulus*. This genus has been discarded in favour of 3 genera, *Xiphosura*, *Carcinoscorpius*, and *Tachyplesus*. It is a marine arthropod whose body, apart from its spike-like tail, is almost covered by a large shell or carapace. Unable to swim, the K. C. is found in comparatively shallow water. Sometimes they bury themselves in the mud or sand, using their tails to change their position. Their eggs are laid in the sand at

high-tide mark. Their food consists of bi-valves and annelids.



KING CRAB

**King Edward VI School**, Southampton, grammar school founded under letters patent of King Edward VI in 1553, by the will of the Rev. Wm Capon, D.D., master of Jesus College, Cambridge, the main part of the existing buildings being erected in 1937. The school has associations with Queen's College, Oxford.

**King Edward VII Land**, region in the Antarctic, lying to the E. of Victoria Land, about lat. 76° S. and long. 152° 30' W., part of Ross Sea Dependency (New Zealand).

**King Edward's Hospital Fund**, see HOSPITAL FUND.

**King Edward's School**, Birmingham. Dating from 1552, the foundation includes 7 schools for boys and girls, to a total of about 4000.

**'King George V.'** name of 2 Brit. battle-ships. The first, after service throughout the First World War, including Jutland, was scrapped in 1926. With ten 13.5-in. guns and a displacement of 23,600 tons, her speed was 21 knots. The second was completed in 1940, served in the convoys to Russia, in the *Bismarck* action, and at the landings in Italy, and took part in Pacific operations, including the bombardment of the Jap. mainland. She has a displacement of 44,650 tons, a length of 740 ft, a beam of 103 ft, and a weight of armour of 10,000 tons. Her armament consists of ten 14-in., sixteen 5.25-in., eight 40-mm., thirty-eight 20-mm., and eighty-eight 2-pounder guns. Aircraft were originally fitted, but were removed in 1943. Other ships of the same class are the *Anson* (q.v.), *Duke of York*, *Howe*, and *Prince of Wales*, the last sunk by the Japanese in 1941.

**King George Sound**, inlet of W. Australia, containing Princess Royal and Oyster harbours, and having on its shore the tn of Albany. Pop. 8265.

**King George's Fields Foundation**, trust responsible for the playing fields side of

the national memorial to King George V. When the national appeal was made in 1936 for funds for a statue in London and playing fields throughout the country, it was the intention that any tn or vil. that needed playing fields and desired to commemorate King George V in that way should have an opportunity of taking part in the national scheme. The appeal closed in 1937, and up to 1939 the amount remitted to the foundation by the National Memorial Fund Committee was £471,000. Surveys made at the time showed that few tns had sufficient playing fields for their pops., and that on the average not one rural par. in ten possessed a public field. The problem, therefore, facing the administrative council at the beginning was how best, where millions of pounds would be required, to make use of its limited funds, and it was decided to make grants towards the capital cost of schemes promoted and maintained by local authorities or local bodies of trustees. This policy has been operated in collaboration with the National Playing Fields Association. Up to the end of 1955 the total number of schemes approved was 492, of which 367 are in England, 86 in Scotland, 30 in Wales, 8 in N. Ireland, and 1 in the Channel Is. Memorial fields in the colonies of Aden, Barbados, Falkland Is., Malta, and Nigeria have also been recognised by the foundation as coming within the scheme and accorded the heraldic panels which distinguish every field within the national memorial.

'King-maker', see WARWICK, EARL OF.

King-of-Arms, see HERALD.

King Paradise Bird, see BIRD OF PARADISE.

King-post, upright post, often carved, in the centre of the truss or frame of a timber-frame roof, resting on the tie beam and supporting the ridge-pole. For an account of the construction of a king-post truss, see CARPENTRY; see also ROOF.

King William's Town, locally called King, a tn in Cape Prov., S. Africa, situated on the Buffalo R. in the midst of an agric. dist.; forests of valuable timber are found near by. It is a busy trade centre of a populous area. When Kaffaria was a separate colony, K. W. T. was the cap. Pop.: Whites, 6505; Bantu, 4315; Coloureds, 1638; Asiatics, 106.

Kingcup, see MARSH MARIGOLD.

Kingdom of Galicia and Volhynia, see GALICIA AND VOLHYNIA, KINGDOM OF.

Kingfisher, Great, see LAUGHING JACKASS.

Kingfishers are members of the Alcedinidae, a family of coraciiform birds remarkable for their peculiar shape and brilliant colouring. The head is exceptionally large, and the long angular beak is keeled; the tail and wings are relatively short, and the metatarsus only slightly developed. The Alcedinidae are sometimes divided into the sub-families Daceloninae, or wood K., and Alcedininae, or water K. The common European Kingfisher, *Alcedo atthis*, is in the latter group;

it has greenish-blue plumage, with bright blue head and tail, and white patches at the side of the neck; the bill is black with orange-tinted base. It is generally found by shady forest streams, sitting on a branch overhanging the water, or hovering with vibrating wings in search of the fish which form its prin. diet; having sighted the prey it dives perpendicularly, with folded pinions, and returning with the morsel dashes it on a stone or tree-branch before swallowing. K. feed also on insects, and on small crustaceans, in search of which they occasionally visit the seashore. Their eggs are usually deposited on a bed of fish-bones, concealed in holes in riv. banks, in tree stumps, or in old walls.

Kinghorn, royal burgh and seaside resort in the co. of Fife, Scotland, on the Firth of Forth, about 3 m. SSW. of Kirkcaldy. A monument marks where Alexander III was killed (1286). Industries are bottle-making and golf-club making. Pop. 2337.

Kinglake, Alexander William (1809-91), Eng. historian, was called to the Bar in 1837. Two years earlier he had travelled in the E., and in 1844 he pub. his experiences in *Eothen, or Traces of Travel brought Home from the East*. His interest in military hist., to the study of which he had devoted much time, took him, in 1845, to Algiers, where he accompanied the flying column of Saint-Arnaud, and, later, to the Crimea at the beginning of the war. The first vols. of his *Invasion of the Crimea* appeared in 1863, and the eighth in 1887.

Kinglet, see GOLDEN-CRESTED WREN.

Kings, *The Books of*, a hist. of the kings of Israel and Judah, from the time of David to the captivity. They anciently counted as one, the fourth in the series of the Former Prophets. It is difficult to make any clear separation between Samuel and K. The div. emphasises the fact that Solomon's reign inaugurated a new epoch, at first of great glory and then of decadence. Samuel and K. were compiled from similar sources, and probably underwent successive redactions by the same hands. The principal of these sources are: (1) The various chronicles, such as the Book of the Acts of Solomon, mentioned in 1 Kings xi. 41, and the Book of the Chronicles of the K. of Judah. These are frequently referred to, but their exact nature is not known. (2) The Book of Jashar and other popular and vivid collections of tales. (3) Certain official records of the temple, which furnish details about the dedication of the temple and its later hist. The main interest of the last redactor lay in this religious development, and his standpoint is definitely deuteronomistic, all the early kings being judged according to the standard of this time. See W. O. E. Oesterley, *An Introduction to the Books of the Old Testament*, 1934; W. F. Albright, *Archaeology and the Religion of Israel*, 1946; J. H. Bewer, *The Literature of the Old Testament in its Historical Development*, 1947; de Vaux, *Les Livres des Rois*, 1949.

King's African Rifles, regiment of 6

battalions of askaris, locally enlisted African tribesmen (Ethiopian, Kavirondo, Nandi, Masai, Somali, Galla, Yao, Mkamba, etc.), and the Somaliland Camel Corps, commanded and trained by regular Brit. officers, with a few specially selected Brit. warrant and non-commissioned officers for training and administrative duties at H.Q. The units are raised as far as possible locally, and are allotted as distinct garrisons to the various Brit. E. African dependencies. The present 3rd K. A. R. were formerly the E. African Rifles, the 4th were the Uganda Rifles; the 1st and 2nd battalions were formed, 1902, from the Central Africa Regiment, recruited in Nyasaland. The K. A. R. have been on more or less continuous active service from 1893—the beginning of the 'scramble for Africa'—until the end of the First World War, and again throughout the Second World War. For years the K. A. R. have been a vital factor in upholding Brit. authority in E. Africa. After 1894, when Sir Gerald Portal declared a Brit. protectorate over Uganda, the so-called scramble for Africa began in earnest. This abrupt transition from tribal independence to tutelage under European powers was not effected without serious fighting, the brunt of which was borne by African troops. Designated by various titles, as shown above, these forces of askaris were eventually co-ordinated and reorganised as the K. A. R. Before the Second World War a garrison of only 5000 riflemen was found sufficient to guarantee the internal security and guard the frontiers of the 5 Brit. dependencies, Kenya, Uganda, Tanganyika, Nyasaland, and Brit. Somaliland, with an aggregate area of 800,000 sq. m. and a total pop. of 12,000,000. But although each dependency has its own separate garrison of K. A. R., the various units are liable to be used to reinforce the troops in any particular dependency in which operations on an extended scale may have been undertaken. Owing to the variations of character and the difference in the temperaments of the different tribesmen in the K. A. R., the transfer of units to countries beyond their own has always to be effected with discretion. Thus Somalis, though tireless in the arid wastes of their own country, are especially prone to malaria and would therefore be of little use for operations in the vicinity of the Uganda lakes or in the swamps of Tanganyika. Again, in view of the great differences in religion, character, and even in colour of the personnel of the K. A. R., it is essential for the officers to study the hist. and customs of all the tribes from which the askaris are recruited. The K. A. R. played a prominent part in the operations against the Mad Mullah between 1899 and 1903, but in the latter year 1 detachment was wiped out at Gumburru. They also fought bravely in the First World War in their own terrain; but, except in the world war periods, the numbers of troops engaged have usually been small, though the distances to be traversed are vast, and the tribal enemy frequently merely

elusive unclad warriors, often armed only with spears and bows and arrows. The services of the K. A. R. in the First World War afforded sufficient argument for their existence as trained cadres in peace, by means of which, if necessary, large bodies of trained troops could be raised and placed in the field at short notice. In that war the K. A. R. took an important part in the operations in E. Africa from the beginning, and particularly after 1916, in Gen. Smuts's advance which swept the Germans out of Brit. ter., and led to the occupation of Dar-es-Salaam and the pursuit of the fleeing enemy by Gen. van Deventer. Various columns, consisting for the most part of battalions of the reorganised K. A. R., pursued the enemy forces till news of the armistice brought about the surrender of von Lettow and his force. In the Second World War the K. A. R. were reinforced by part-time volunteers of the E. African Defence Force. For many months after Italy's entry into the war in 1940, the K. A. R. bore the brunt of the fighting in the desert country of E. Africa. With the N. Rhodesian contingent and the Somaliland Camel Corps they offered stubborn resistance to the It. invasion of Brit. Somaliland, and later, when the British passed to the offensive, they took a prominent part in the recovery of that ter. It was the speed of the advance of the K. A. R. to Afmadu which made the Italians evacuate Kismayu. In Feb. 1941, in the assault across the Juba R., the K. A. R. rendered notable service in the trackless bush. One mobile detachment with tanks and armoured cars took Modun and 1000 prisoners. Other companies of the regiment won victories at Todenyang and Namaraputh, and at Merca they released 200 Brit. sailors, victims of a Ger. raider, who had been lodged in an It. prisoner-of-war camp. In Ethiopia the K. A. R. were responsible for the brilliant capture of Mt Fike, which was instrumental in dealing a mortal blow to It. hopes of counter attack. The K. A. R. were also in the advances which led to the assault on Gondar and in the attack which ended the Ethiopian campaign. Volunteers of the K. A. R. in Burma played a major part in the capture of the reputedly impregnable Mt Kennedy in Nov. 1944, and stormed Kalemaya, guarding the approaches to Kalewa on the Chindwin R., their speed and stamina completely baffling the Japanese. The K. A. R. have taken an active part in the suppression of the Mau Mau outbreaks which began in 1952. In the same year a contingent was sent to serve against the Communist guerrillas in Malaya. See W. Lloyd-Jones, *King's African Rifles*, 1927, and Lt.-Col. H. Moyse-Bartlett, *The King's African Rifles*, 1956.

**King's Badge**, see SILVER WAR BADGE. **King's Bench Prison**, formerly in Southwark, London, which certainly existed early in the 14th cent. Much later it became used for debtors until 1862, when it became a military prison until closed and demolished in 1879-80.

**King's Champion**, see CHAMPION.

**King's College, Cambridge**, was founded in 1441 by King Henry VI. K. C. was exempt from the jurisdiction of the Archbishop of Canterbury, the Bishop of Ely, and even, in certain matters, of the univ. The chapel (Perpendicular) is very fine. It was begun in 1446 by Henry VI (architect: Reginald Ely), and continued by Edward IV and Richard III (architect: Simon Clerk) and Henry VII (architect: John Wastell); the stonework was finished in 1515, with the completion of John Wastell's splendid fan vault. The incomparable windows, for the most part the work of Netherlandish glaziers, inserted between 1517 and 1531. Henry VIII gave the woodwork, carved by foreign craftsmen of unknown nationality, and dated by the monogram 'HA,' for Henry and Anne Boleyn.

**King's College, London**, college of London Univ. (q.v.), founded in 1828, its constitution being amended by an Act of Parliament in 1882, and again in 1908 when the college was reorganised under a scheme of incorporation, becoming Univ. of London K. C. (which includes the faculties of arts, laws, science, medicine, and engineering, and a dept of education) and K. C. theological dept. The faculty of engineering began in 1838, and the theological dept. in 1846. K. C. Hospital was estab. in 1839 in Portugal St, but is now at Denmark Hill under a separate governing body. The junior dept of the college moved to Wimbledon in 1897 as K. C. School and was transferred by statute in 1911 to the corporation in which the property of the school is now vested. Civil service classes were begun in 1856 and developed into the Strand School (taken over by the L.C.C. in 1912) and into St George's College. The dept for higher education for women was opened in 1885 in Kensington; its home science dept was moved in 1915 to Campden Hill, becoming K. C. of Household and Social Science in 1928 and Queen Elizabeth College (q.v.) in 1953; the rest was merged into Univ. of London K. C. in 1915. The dept of oriental language and literature was transferred to the School of Oriental and African Studies (q.v.) in 1917, and the dept of Russian to the School of Slavonic and E. European Studies in 1932. The college has over 2000 students, and is situated in the Strand.

**King's Council**, see CURIA REGIS.

**King's Evil**, old and popular name for scrofula (q.v.). The origin of the term lies in the belief that a royal personage was endowed with healing power directed particularly to this form of tuberculosis. The power was claimed by the royal houses of England and France, and was attributed to the use of 'chrism,' or oil of peculiar sanctity, in the coronation ceremonial. From the time of Edward III the custom of touching afflicted persons was maintained until the time of the Stuarts; under the Hanoverians the actual custom became obsolete, although the Stuart pretenders practised it in their exile and during their invasions of this country.

See ANGEL. See also H. L. Seaver, *The Royal Touch* (in Massachusetts Hist. Society Proceedings, vol. 65, 1946).

**King's Langley**, vill. of Herts, England, 4 m. from Watford. Here is the site of a former royal palace, residence of English sovereigns from Henry III to Richard II. Pop. 4200.

**King's Letter**, see BRIEF.

**King's Lynn**, *Lynn Regis*, or *Lynn*, municipal bor., mkt tn, and seaport of Norfolk, England, situated at the mouth of the Great Ouse, 97 m. N.E. of London. The harbour is some 30 ac. in extent; there are 2 docks, spacious quays, and good roadsteads between them and the Wash. The Alexandra Dock, opened in 1869, has a water area of nearly 7 ac. with a depth of 31 ft. In addition there are riverside quays. On its landward side the tn was formerly defended by a fosse, and remains of the old wall, including a handsome Gothic structure known as the S. Gate, may still be seen. The streets are generally narrow and winding. In the centre of a public promenade in the Walks is an octagonal chapel called the Red Mt (1485), which was formerly the resort of pilgrims. The par. church of St Margaret (1100) is a fine Gothic structure, with 2 towers at the W. end. St Nicholas's chapel (1150) has many interesting monuments; All Saints' Church is a beautiful and ancient cruciform building. Among other notable buildings are the Trinity Guildhall (tn hall adjoining) with Renaissance porch, and W. Lynn church, the E. wall and window of which have been rebuilt. Clifton House, with a 5-storeyed brick watch-tower, is among the most interesting of the merchants' houses, dating from the 16th or early 17th cent., and has recently been purchased by the corporation for preservation. St George's Hall, in King St, the old medieval hall of the Guild of St George, is now in use as an arts centre; a festival of music and arts is held annually. The grammar school dates back to Henry VIII. The fisheries of K. L. are important, and include mussels, cockles, and shrimps; there are boat-building yards, manufs. of sails, artificial manures and fertilisers, engineering works, iron foundries, a beet-sugar factory, and fruit- and vegetable-canning, and shellfish-bottling factories, corn-mills, agric. implement manufs., and a brewery. Pop. 26,173.

**King's Medal for Service in the Cause of Freedom**, silver medal instituted in 1945 to recognise services by civilians of foreign nationality in furtherance of the interests of the Brit. Commonwealth in the allied cause during the Second World War. The obverse bears the king's crowned effigy. The reverse, designed and modelled by Mr T. H. Paget, shows a knight in armour, fresh from the heat of combat, and with his lance broken, receiving refreshment from an allegorical female figure. A similar medal, for 'courage in the cause of freedom,' is awarded for deeds of gallantry, generally to members of resistance movements who helped Brit. servicemen to escape from the enemy.

he dealt with various abuses. As the movement became more revolutionary in its character, his sympathies were alienated from it, and his later books had nothing to do with its propaganda. *Hypatia*, 1853, is a brilliant and forcible picture of life in the 5th cent. at Alexandria in the days when the Christian Church and the Rom. Empire were struggling for mastery. *Westward Ho!*, 1855, his most popular work, is a stirring story of the Elizabethan heroes. *Two Years*



N.P.G.

CHARLES KINGSLEY  
Water-colour by Carlo Pellegrini,  
drawn for *Vanity Fair*.

*Ago*, 1857, is a story of the Crimean War. He pub. the delightful *Water-babies* in 1863, and, subsequently, other books. He also wrote poetry, and some of his verses have the true poetic ring, notably 'The Three Fishers,' 'A Farewell,' and 'Young and Old.' K.'s power of characterisation was weak. His characters are either lay figures or unoriginal. His one outstanding creation is Miriam in *Hypatia*. He had a great command of language, and his scene-painting is admirable. In few Eng. authors can there be found finer pictures than are contained in his books, whether of King, landscape, as in *Yeast*, of wretched novels, as in *Alton Locke*, of Alexandria and the desert, as in *Hypatia*, of the hills of Devon, and the solitude of the great S. Amer. forest which Amyas Leigh and his followers traverse, as in *Westward Ho!*, or of the fenlands, as in *Hervard the Wake*.

The blend in K. of jingoism, latitudinarianism and anti-popey coincided well with the tastes of Queen Victoria, and in 1859 all remembrance of his youthful radicalism was forgotten in an invitation to preach in Buckingham Palace. He soon became one of the queen's chaplains-in-ordinary, and almost at the same time

Palmerston offered him the Cambridge professorship of modern hist. The only reason for supposing that he was qualified for the post was that he had written 3 historical novels, and he soon showed that he was not really suited to the chair. The queen then appointed him tutor to her heir, then studying at Cambridge. To prepare himself for this additional privilege, K. immersed himself in Ger. hist., only to learn with dismay that he was to instruct the prince in the period from William III to Waterloo. However, he continued to deserve and enjoy the queen's approval. He attacked popery, he championed Governor Eyre (q.v.), and he welcomed the Prussian victory at Sadowa. Yet year followed year, deaneries and bishoprics fell vacant, and K. remained rector of Eversley. When the queen suggested him in 1868 for a canonry at Worcester, even this small prize was withheld, for the reason that it would have been prejudicial to Disraeli. In the following year Gladstone, who shared few of K.'s opinions, made amends for K.'s earlier disappointments, and he was made a canon, first of Chester, then of Westminster. Had he not d. at 55, he might well have become a bishop. In a new reassessment of K., Dame Una Pope-Hennessy reveals him as a greater man than most imagine. There was a rugged independence of mind, though not supported by intellect of an equal order. Christian Socialist, Imperialist, and Chart-ist sympathiser, he was often guided by impulse rather than principle, and showed a desire to throw himself into a conflict with an added pleasure when he found himself on the unpopular side. Dame Una rightly insists upon K.'s passion for nature, and suggests that, if he had concentrated upon describing natural scenes, he would rank to-day above Richard Jefferies. However that may be, it was this passion that enabled K. to admire Darwin, whereas most other intellectuals, including Goethe and George Eliot, excited his contempt.

See his *Life and Letters*, ed. and written by his widow, 1877; C. E. Raven, *Christian Socialism*, 1920; W. H. Brown, *Charles Kingsley: the Work and Influence of Parson Lot*, 1924; M. Hanawalt, *Charles Kingsley and Science*, 1937; G. Kendall, *Charles Kingsley and his Ideas*, 1947; and Una Pope-Hennessy, *Canon Charles Kingsley*, 1948.

**Kingsley, Henry** (1830-76), novelist, b. Barnack, Northants, a brother of Charles K. (q.v.). Educ. at King's College, London, and Oxford, he went to the Australian goldfields in 1853. Returning in 1858, he began to write novels, the first of which, *Geoffrey Hamlyn*, appeared in 1859. From 1864 he ed. the *Edinburgh Daily Review*, and acted as war correspondent for the paper during the conflict between France and Germany (1870-1). His masterpiece is *Ravenshoe*, 1860. See also AUSTRALIAN LITERATURE. See life by S. M. Ellis, 1931.

**Kingsley, Mary Henrietta** (1862-1900), ethnologist, sociologist, and traveller,

remarkable for her researches into W. African ethnology. B. Islington, daughter of George Henry K., brother of Charles K.; studied ethnology at Cambridge Univ. After the death of her parents she decided to go out to W. Africa and make a study of native religion, law, customs, and folklore. She pub. an account of her exploration in *Travels in West Africa*, 1897. Other works include *West African Studies*, 1899, and *The Story of West Africa*, 1899. Mary K.'s life was an unselfish one and she d. in S. Africa at an early age from enteric fever contracted in nursing fever cases during the Boer War. See life by S. Gwynn, 1932; O. Campbell, *Mary Kingsley: a Victorian in the Jungle*, 1957; C. Howard, *Mary Kingsley*, 1957.

**Kingsport**, tn in Tennessee, U.S.A., on the Holston R., in the S. Appalachian Mts. Industrial products include cellulose acetate, iron, glass, and rayon, and there is a large book-printing works. The city is on the site of the fort (built 1761) on the old Wilderness Road. Pop. 19,570.

**Kingston**, William Henry Giles (1814-1880), writer of boys' books, b. London, son of a merchant who lived in Oporto. Here he wrote articles for the Portuguese newspapers, which were instrumental in the conclusion of a commercial treaty between England and Portugal. His first success came with his story for boys, *Peter the Whaler*, 1851. He was encouraged by this success to retire from business and devote himself to tales of adventure. He soon became one of the most popular authors of adventure stories, and within 30 years wrote some 130 tales of adventure for boys. Among them were *From Powder Monkey to Admiral*, which ran as a serial in the *Boy's Own Paper*. Others were *The Three Midshipmen*, 1862, *The Three Lieutenants*, 1874, *The Three Commanders*, 1875, and *The Three Admirals*, 1877. He also conducted sev. papers, including *The Colonist* and *The Colonial Magazine and East India Review*. He was also interested in emigration, volunteering, and various philanthropic schemes. For his services in negotiating the treaty mentioned above, he received a Portuguese knighthood, and for his literary labours a gov. pension.

**Kingston**: 1. Seaport and cap. of Jamaica, situated in the SE. of the is. It has one of the finest natural harbours in the world; the area of the harbour is 16 sq. m., of which about 7 sq. m. have a depth of from 7 to 10 fathoms. K. is beautifully situated on regularly sloping ground virtually at the foot of the Blue Mts and on the N. shores of the harbour, and is one of the is.'s tourist resorts. The streets were laid out by compass, those at right angles to the shore running N. and S., those parallel to the shore-line running E. and W., but flood waters have worn the N. and S. streets below the general level. K. was not the first place chosen for the commercial cap. Port Royal flourished as such until it was destroyed by an earthquake in 1692, when a law was passed declaring K. to be the

'chief seat of trade and head port of entry.' From that time the prosperity of K. was assured. It was swept by a great fire in 1780, but soon recovered. A disastrous earthquake occurred in Jan. 1907, when nearly 2000 lives were lost. Poverty and unemployment led to serious riots in May-June 1938, and damage was done to corporation and other property. The Jamaican Gov. railway links K. with Montego Bay and Spanish Town, and it has an airport. In 1923 K. and the adjacent par. of St Andrew were incorporated under a joint mayor and council. Pop., with St Andrew, 338,010, mostly Negroes.

2. City of Ontario, Canada: cap. of Frontenac co., on the NE. of Lake Ontario at the mouth of the Cataragui R., and 160 m. E. of Toronto. Called the Limestone City from many public and private buildings of that material. It was incorporated as a city in 1838, and in 1841 became for a time the cap. of Canada. In the same year was founded Queen's Univ.—the third largest in all Canada. Besides the univ., it has the Royal Military College of Canada, a fine collegiate institute and vocational school, and good public and private schools. K. has also an excellent public library, and good hospitals. There are 2 cathedrals and many churches. Its industries include locomotives, textiles, shipbuilding, biscuits, and chemicals. It is on the Canadian National (main line) and Canadian Pacific railways, has a good harbour, and is an important port of call for Great Lakes freight and passenger services. K. was founded in 1673 by Count Frontenac, governor of New France. Captured by the British in 1758, and in 1783 settled by United Empire Loyalists. Pop. 43,145.

3. City of New York, U.S.A., and co. seat of Ulster co., situated on the Hudson R. Its chief industries are the manuf. of clothing, textiles, refrigerators, bricks, and metal products; there is also mushroom growing. K. is in a fruit-growing area. Pop. 28,800.

4. Bor. of Pennsylvania, U.S.A., in Luzerne co., situated on the r. b. of the Susquehanna R. The manufs. are silk goods and hosiery, and there are railway works and machine factories. Coal is extensively mined in the neighbourhood. Pop. 21,090.

**Kingston upon Hull**, see HULL.

**Kingston-upon-Thames**, royal and municipal bor. and mkt tn of Surrey, England, 11 m. SW. of Charing Cross. It is a residential suburb, possessing fine promenades and public gardens on the riv. bank. Occupations include aircraft manuf. and many lighter industries. K. is historically interesting; sev. Saxon kings were crowned here, and the coronation stone, which is supposed to have been used for the throne, now stands in the forecourt of the Guildhall. The Saturday market was granted by James I. and the Wednesday market by Charles II. A fair, held in Nov., but now discontinued, was granted by Henry III. King George VI, with the queen in Oct. 1948, opened the new power station at K., the first of

25 planned for the whole country. Pop. 39,300.

**Kingstown:** 1. Inland seaport of Dublin, Rep. of Ireland, see DUN LAOGHAIRE.

2. Seaport and cap. of St Vincent, W. Indies, situated on the SW. coast. It exports spices, sugar, cocoa, spirits, etc., virtually the whole of the St Vincent's commerce being through K. Pop. 6000.

**Kingsway,** thoroughfare in London, which connects Holborn with the Strand. It was so called in compliment to King Edward VII, who opened it on 18 Oct. 1905. It runs from High Holborn, opposite Southampton Row to Aldwych, and is 1800 ft long and about 110 ft wide. A tunnel, formerly for tramways, runs below K., connecting Theobalds Road with the Thames embankment.

**Kingswinford,** see BRIERLEY HILL.

**Kingswood:** 1. Urb. dist. of Glos., England, about 3 m. from Bristol, with manufs. of boots, underwear, brushes, food products, and motor-cycles. Here in 1739 John Wesley and George Whitefield began their field preaching mission. Pop. 19,000.

2. Vil. of Glos., England, about 20 m. from Bristol, with 3 elastic mills, formerly a centre for cloth manuf. The 15th-cent. gatehouse is all that remains of a Cistercian abbey founded here in 1149. Pop. 1000.

3. See BANSTEAD.

**Kingswood School,** Bath, public school for boys, founded by John Wesley (q.v.), 1748, originally for the sons of Methodist ministers.

**Kington,** mkt tn of Herefordshire, England, on the R. Arrow, 19 m. NW. of Hereford. The church dates from the 14th cent.; the tower is Norman. Hergest Court, with its 14th- and 15th-cent. buildings, is all that remains of the border castle. Limestone is quarried near by. Pop. 2000.

**Kinrossie,** burgh of Inverness-shire, Scotland, 43 m. S. of Inverness. It is a favourite summer resort. Pop. 1050.

**Kinkajou,** or *Jupura* (*Potos flavus*), carnivore of the suborder Arctoidea and placed with the raccoons in the family Procyonidae. The K. has a short, rounded head, a long, prehensile tail, and the feet are provided with short, sharp claws, particularly used when the animal is climbing. It is much the same size as a domestic cat but has a longer tail. It is found in Central and S. America and is almost entirely arboreal, feeding by night on small mammals, birds, and insects; fruits and honey are also eaten. The false K. (*Basaricyon*) resembles the K., but the tail is not prehensile.

**Kinleith,** tn in N. Is., New Zealand, 144 m. S. of Auckland, 39 m. N. of Taupo. H.Q. of new Kraft pulp and paper industry, estab. by New Zealand Forest Products Ltd., and the site of a modern saw-mill with the largest output of sawn timber in the country. A residential tn for mill employees is Tokoroa, 4 m. away. Pop. 300 in 1949; 5000 in 1955; expected to reach 10,000 by 1960.

**Kinlochleven,** tn at the head of Loch Leven, Argyll, Scotland, is of recent

growth, and owes its existence to the development of the water-power of the dist., and the estab. of the works of the Brit. Aluminium Co. See LEVEN. Pop. 2000.

**Kinloss,** vil. of Ontario, Canada, situated in Bruce co., close to Kincardine.

**Kinnear,** Norman Boyd (1882- ), ornithologist, son of an Edinburgh architect, educ. at Edinburgh Academy and Trinity College, Glenalmond. From 1905 to 1907 he was an assistant at the Royal Scottish Museum, and for the next 12 years curator of the Bombay Natural Hist. Museum, as well as assistant editor of the Bombay Natural Hist. Society Jour. In 1920 he entered the natural hist. dept. of the Brit. Museum, in 1927 becoming deputy keeper in charge of birds. He became keeper of zoology in 1945, and 2 years later director of the natural hist. dept. He has pub. a number of papers on ornithology.

**Kinneir,** Sir John Macdonald (1782-1830), traveller and diplomatist, b. Carneden, Linnlithgow. In 1804 he was appointed ensign in the Madras Infantry, and became captain in 1818. He made numerous journeys in Persia, and also travelled through Armenia and Kurdistan, publishing his results in a *Narrative of Travels in Asia Minor, Armenia, and Kurdistan in 1813-14*, 1818. He was envoy to Persia, 1824-30, and took part in the hostilities with Russia.

**Kino,** astringent (q.v.) drug obtained from certain trees on the W. coast of Africa, in India, and in Ceylon. The substance recognised as K. at the present day is the product of the tree *Pterocarpus marsupium*. The properties of the drug are due to the presence of kino-tannic acid and pyrocatechin. It is a useful astringent, and was formerly used as a gargle and given internally, in the form of a powder, for diarrhoea.

**Kinross:** 1. Inland co. of Scotland, bounded on the N. and W. by Perthshire, and on the S. and E. by Fife. Its surface is hilly in the N. and W. (Ochil Hills); to the E. are the Lomond heights. In the SE. is Loch Leven (q.v.), drained by the R. Leven; Mary Queen of Scots was imprisoned on an is. in the loch. The co. is well cultivated; barley and oats are grown, and cattle and sheep are reared. Linen is manuf. and wool-spinning carried on. K. and W. Perth form a single parl. div., returning 1 member. Area 87 sq. m.; pop. 7420.

2. Co. tn of the above co., 8½ m. from Dunfermline. K. was the prin. residence of Alexander III. K. House (built 1685-1690) is a fine example of It. Renaissance style architecture. There is a woollen mill and linen is manuf. Pop. 2500.

**Kinross of Glaselune,** John Blair Balfour, 1st Baron (1837-1905), lord president of the court of session in Scotland, b. Clackmannan. He was called to the Scottish Bar in 1861, and rose to be the foremost advocate in Scotland. He was appointed solicitor-general for Scotland in 1880, and in 1881 became lord advocate, again holding the office in 1886 and from



1892 to 1895. In 1899 he succeeded James P. Bannerman as lord president of the court of session, and in 1902 was raised to the peerage.

**Kinsale**, seaport tn, 15 m. SW. of Cork, Rep. of Ireland. Built on the slopes of Compass Hill, its streets are narrow and steep. It has remains of Charles (now K.) Fort, one of the first examples of military architecture in the world. K. Harbour is the estuary of the Bandon R.,  $\frac{1}{2}$  m. wide and winding for 2 m. Off the Old Head of K., on a rocky coast with a lighthouse which is the first landfall of ships coming from the U.S.A., the *Lusitania* was sunk in 1915. Pop. 2000.

**Kinsen**, see CREMULPO.

**Kinshakiang**, see CHINGSIA.

**Kinston**, tn of N. Carolina, U.S.A., and the co. seat of Lenoir co. It is situated on the Neuse R., about 26 m. SE. of Goldsboro by rail. It is a tobacco market and tobacco-processing centre; it manufs. shirts, yarn, textiles, and paper boxes, and there are lumber mills. Pop. 18,336.

**Kintore**, royal burgh of Aberdeenshire, Scotland, 12 $\frac{1}{2}$  m. from Aberdeen. The tn hall was built in the 18th cent. Pop. 850.

**Kintyre**, or **Cantire**, peninsular dist. of Argyll, Scotland, situated between the Firth of Clyde and the Atlantic, and joined to the Argyll mainland by the isthmus of Tarbert. It is 43 m. long (average width 6 $\frac{1}{2}$  m.); the prin. tn is Campbelltown. The chief occupations are agriculture, fishing, coal-mining, forestry, and stone quarrying. The Mull of K. is a headland at the S. extremity; there is a lighthouse on it with a fixed light visible 24 m. distant.

**Kinver Edge**, Staffs, 5 m. W. of Stourbridge and 5 m. N. of Kidderminster; 198 ac. of high heath and woodland with fine views, including an early Iron Age camp and the Holly Austin and Nanny's Rocks. There are some interesting rock dwellings on the property. Presented in 1917 as a memorial to Mr Grosvenor Leo by his children.

**Kioga**, one of the chain of lakes in Uganda, forming a swampy kind of extensive backwater in the headwaters of the Nile. Navigable channels have to be maintained by constant cutting through the Sudd.

**Kios**, see CHIOS.

**Kiosk**, originally a Turkish or Persian summer-house, usually supported on pillars. In modern life, the term is applied to small erections for the sale of newspapers, etc., especially in Paris.

**Kioto**, see KYOTO.

**Kiowas**, tribe of N. Amer. Indians of the plains culture and one of the most bitter enemies of the White Amers. Like the Comanche and Apache, they raided Mexican ter. until subdued. To-day they number about 2000, mostly in Kansas.

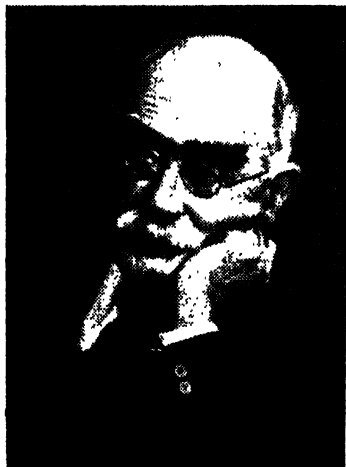
**Kipling**, **John Lockwood** (1837-1911), author and artist, b. Pickering, Yorks, father of the novelist, Rudyard K. (q.v.). He was educ. at Woodhouse Grove, and entered the Indian Civil Service in 1867. He was architectural sculptor at the Bombay School of Art, 1865-75, and principal of the Mayo School of Art and

curator of the Central Museum at Lahore, 1875-93. He pub. *Beast and Man in India*, 1901, a collection of Hindu and Mohammedan folk-tales, and also executed illustrations for his son's books: *Kim*, the *Jungle Book*, and the *Second Jungle Book*.

**Kipling**, **Joseph Rudyard** (1865-1936), novelist and poet, b. Bombay, son of John Lockwood K. (q.v.) and Alice Macdonald (d. 1910). He was educ. at the United Services College, Westward Ho!, N. Devon. A somewhat highly coloured picture of his life there is presented in *Stalky and Co.*, 1899. At the age of 17 he returned to India and became sub-editor of the *Lahore Civil and Military Gazette*. In 1886 appeared his *Departmental Ditties*, a vol. of light satirical verse; in the following year, *Plain Tales from the Hills*; and during the next 2 years *Soldiers Three*, *The Story of the Gadsbys*, *In Black and White*, *Under the Deodars*, *The Phantom Rickshaw*, and *Wee Willie Winkie*. These tales quickly became famous in India, and it was recognised that a new force had come into the literary world. During the years 1887 and 1889 K. travelled through India, China, Japan, and America, and thence to England, where he arrived to find himself famous. His travels also took him to Africa during the Boer War, and to Australasia. His travel sketches were pub. in 1899 under the title of *From Sea to Sea*. In 1892 K. married Miss C. S. Balestier, the sister of W. Balestier. In conjunction with whom he wrote *The Naulahka*, 1891. *Life's Handicap* was pub. in 1890, and in 1891 his first novel appeared, *The Light that Failed*, which was afterwards dramatised in 1905. *Barack Room Ballads*, verse, was pub. in 1896 and also in the same year *Many Inventions*, a collection of stories. In 1894 a new vein was opened up by his *Jungle Book*, followed in 1895 by the *Second Jungle Book*. These masterly stories of animal life are considered by many K.'s best work. *The Seven Seas*, verse, was pub. in 1896, and the novel *Captains Courageous* in 1897, followed by *The Day's Work*, 1898, *A Fleet in Being*, 1898, *Stalky and Co.*, 1899, *Kim*, 1901, and *Just So Stories for Little Children*, 1902. Another book of verse, *The Five Nations*, appeared in 1903, and 2 collections of stories, *Traffics and Discoveries* in 1904, and *Actions and Reactions* in 1909. *Puck of Pook's Hill*, stories which vitalise the hist. of England, came out in 1906, and was followed by a sequel, *Reveries and Fancies*, in 1910. In 1911 K. pub. a *History of England*, written in collaboration with C. R. L. Fletcher. *Songs from Books*, a collection of his chapter-headings, was pub. in 1913, and in that year also a play, *The Harbour Watch*. During the First World War K. wrote *The New Armies in Framing*, 1914, *Fringes of the Fleet*, 1915, *Sea Warfare*, 1916, *A Diversity of Creatures*, 1917, and *The Years Between*, 1918, another book of verse. K.'s son, who served with the Irish Guards, was killed at Loos, and the achievements of that regiment were

commemorated by K. in *The Irish Guards in the Great War*, 1923, a compilation from diaries and regimental papers. His collected verse was pub. in 1919, and after that time he pub. *Letters of Travel*, 1920, *Land and Sea Tales for Scouts and Guides*, 1923, *Debts and Credits*, 1926, *A Book of Words*, 1928, *Thy Servant, a Dog*, 1930, *Limits and Renewals*, 1932, *Souvenirs of France*, 1933, *The King and the Sea*, 1935, and *Something of Myself, for my Friends, Known and Unknown*, 1936.

K.'s best work is in his short stories, and his early collection, *Life's Handicap*, is



E.N.A.

RUDYARD KIPLING

among his finest books. His main interest was the Brit. Empire in all its manifestations, from the big drums to the humble outposts of empire in out-of-the-way places. It was the man of action that K. loved, be he engine-driver, empire-builder, or polo-player. It was his preference for action over the introspections of the individual, so often the subject of the modern novel, that distinguished him from his contemporaries. Some critics argue that K. portrayed only types, and not characters, but if this is true his type is always embodied in an individual; for K. was no lover of crowds, believing man to be a solitary who must work out his own salvation. K. was a romantic writer, but his romanticism is everywhere rooted in realism. In his best stories there is nothing vague or uncertain, although occasionally he gives way to didacticism. That K. has a permanent place in Eng. literature seems certain, especially for his earlier prose and verse. But his verse is the more difficult to estimate because, apart from the changing standards of poetry, K.'s own standards changed from

the more youthful, confident, clarion note to a later stage of maturity, in which an element of mysticism is evident.

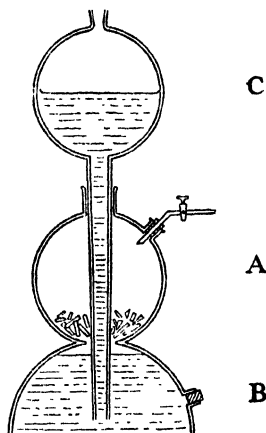
One deep source of his great popularity was a mastery of the native rhythms of English, which appealed to everyone by its directness, and both his poetry and prose stories are characterised by a remarkably vivid imagination, revealing a skill in narrative and description which are well matched by a rare power of intensifying character. Impregnated as he was with the spirit of the national consciousness and the racial temperament, K. was obsessed with the conviction of Britain's noble destiny, a destiny in which the inspiring motives were not power or domination, but moral obligations and service. In his mind's eye was a compelling vision of external forces with puny man living dangerously and valiantly amidst such forces. K. disregarded intellectual subtleties, not because he was incapable of them, but rather from an intuitive dislike based on a good understanding of their values. T. S. Eliot makes the distinction that K.'s verse ranks as 'great verse,' and not as 'great poetry,' but he does not define the latter, nor does he show how K. did not achieve it. It has been frequently objected that K.'s poetry is careless, even deficient, of beauty, and subordinates this element to the clamour of 'politics.' But the special colour beauty of a poem of Keats is not the only kind of poetic beauty, and to speak only of the clamour of politics is to misconceive politics generally, besides ignoring the intense sensations with which K. contemplated the role of England in the scheme of things. There is a mystic poetry in his stories, and it harmonises with the mystic realism of his verse.

In recognition of his work K. received many honours. In 1907 he was awarded the Nobel prize, and in 1926 the gold medal of the Royal Society of Literature. He was also awarded honorary degrees at the univs. of Oxford, Cambridge, Durham, Edinburgh, Paris, Strasburg, and Athens, and from 1922 to 1925 he was rector of the univ. of St Andrews. In 1933 he was elected a foreign associate member of the Fr. Académie des Sciences et Politiques, an honour then shared only by King Albert of Belgium and Cardinal Mercier. K. d. in the Middlesex Hospital on 18 Jan. 1936, after an operation. His home, Kipling House, at Burwash, Sussex, is kept as a memorial under the National Trust.

See C. Charles, *Rudyard Kipling*, 1911; C. Falls, *Rudyard Kipling*, 1915; R. T. Hopkins, *Rudyard Kipling*, 1921, and *Rudyard Kipling's World*, 1928; E. W. Martindell, *A Bibliography of the Works of Rudyard Kipling*, 1923; E. Shanks, *Rudyard Kipling: a Study in Literature and Political Ideas*, 1940; T. S. Eliot, *A Choice of Kipling's Verse*, 1942; C. Hilton Brown, *Rudyard Kipling, a New Appreciation*, 1945; R. Croft-Cooke, *Rudyard Kipling*, 1948; and the official biography by C. Carrington, *Rudyard Kipling, his Life and Work*, 1955.

**Kippis, Andrew** (1725-96), Presbyterian minister, b. Nottingham. He was educ. for the ministry at Northampton and in 1753 he became minister of a church in Westminster. He wrote for various magazines, planned and ed. the *New Annual Register*, which lasted from 1780 to 1826, wrote sev. biographies, among them that of Dr Doddridge, under whom he had studied, and ed. the *Biographia Britannica*, 2nd ed., but had completed only 5 vols. before he d.

**Kipp's Apparatus**, ingenious and very useful device for obtaining intermittent supplies of various gases in chemical laboratories. The apparatus consists of



KIPP'S APPARATUS

3 parts (see diagram): a large central bulb, A, which is connected with a receptacle, B, and a kind of large thistle funnel, C, which passes through A into B. The joint between A and B is made air-tight by vasoline, and the opening between A and B is narrow, so that when C is inserted there is only a little space between the two. Sticks of ferrous sulphide are placed in A, sticks being used so that the substance will not fall through the narrow opening into B. Sufficient hydrochloric acid is poured in at C to fill the vessel B and overflow into A so that it just covers the sulphide. Hydrogen sulphide is immediately evolved:  $\text{FeS} + 2\text{HCl} = \text{FeCl}_2 + \text{H}_2\text{S}$ . The gas is led out, when required, at the tap. When sufficient gas has been used the tap is closed, but the acid is still covering the ferrous sulphide, so that hydrogen sulphide is still being evolved. Since the gas cannot escape, the pressure in A increases, and in time is sufficiently great to force all the acid out of A into the top part of C. When the tap is opened again the gas rushes out, the pressure inside A becomes atmospheric, so that the acid falls from C into B, and hence into A.

Thus, so long as the tap is open the acid covers the ferrous sulphide, and the gas is generated. The apparatus is named after its inventor, P. J. Kipp, a Dutch chemist, 1808-64.

**Kipsigis**, Nilo-Hamitic tribe of the highlands of Kenya. They were once a pastoral people but are now agriculturalists. They lack a centralised political organisation, their form of gov. being a system of age-sets and elders' grades based on initiation. They were great warriors, with a well-organised military system. They are often erroneously called Lumbwa. See J. G. Peristiany, *The Social Institutions of the Kipsigis*, 1939.

**Kipu**, see QUIPU.

**Kiran**, see PIRAN.

**Kircher, Athanasius** (c. 1601-80), Ger. scholar, was prof. at 6 Jesuit colleges in his native country, and from 1635 to 1643 lectured on mathematics at the Collegio Romano in Rome. His *Oedipus Aegyptiacus*, 1652-5, promoted the study of Egyptian hieroglyphics, and his *Prodromus Coptus*, 1636, of the Coptic tongue. A wide knowledge of ancient and modern Italy is revealed by his *Latium*, 1669, but perhaps his greatest claim to fame rests on his investigation of subterranean forces, as in his *Iter extaticum secundum*, 1657.

**Kirchheim**: 1. (Unter Teck) Ger. tn in the Land of Baden-Württemberg (q.v.), 16 m. S.E. of Stuttgart (q.v.). It has a castle and ancient ramparts, and is overlooked by the fortress of Teck. There are textile and metal manufs. Pop. 21,000.

2. Ger. tn in the Land of Baden-Württemberg (q.v.), on the Neckar (q.v.), 17 m. N. of Stuttgart. It has ancient fortifications and houses, and is a wine-producing centre. Pop. 3,000.

**Kirchhoff, Gustav Robert** (1824-87), Ger. physicist, b. Königsberg, graduated Ph.D. from the univ. of his native tn in 1847. In the same year he formulated the laws named after him relating to the distribution of currents in a network of conductors. He held the chair of physics successively at Breslau (appointed in 1850), Heidelberg (1854), and Berlin (1875). In collaboration with von Bunsen he evolved the theory and practice of spectrum analysis, and indicated how the prism may be used to establish the chemical composition of celestial bodies. In 1860, with Bunsen, he discovered the elements caesium and rubidium by means of spectrum analysis. His *Vorlesungen über mathematische Physik*, 1876, contains an original treatment of dynamics.

**Kirchhoff's Laws**, see CURRENT ELECTRICITY.

**Kirchhörde**, S. suburb of Dortmund (q.v.), Germany.

**Kirgiz**, or **Kirghiz**, formerly nomadic Turkic people originating from the Yenisey R. and now forming the bulk of the pop. of Kirgizia in Soviet Central Asia. In Tsarist times the name was erroneously applied to the Kazakhs (q.v.) in order to avoid confusion with the Cossacks (Russian Hazak), the real K. being known as Kara-K. See also next article.

**Kirgizia**, or **Kirgizstan**, rep. in the E. of Soviet central Asia, situated on the frontier between the U.S.S.R. and Sinkiang. K. became an autonomous rep. in 1926, and was elevated to the status of a union rep. in 1936. The inhab. are Kirgiz (who constitute over one half of the pop.), Russians, Ukrainians, Uzbeks, Uigurs, and Dungans, the last being of Chinese Muslim origin.

The Kirgiz dwell in the highlands between the R. Issyk-Kul and the Kuen-Lun, and from the E. borders of Fergana across to the Muzart Mts. They number in all about 800,000, and are divided into 2 main sections: the Sol in the W. and the On in the E. They are nominally Sunnite Muslims. Physically they resemble the Mongolians, but their speech is purely Turkic. They breed fat-tailed sheep, hardy horses, camels, goats, and oxen, and cultivate wheat and millet, sugar-beet, fruit, and vines in the foothills and irrigated valleys. The region has large deposits of coal, oil, gold, lead, antimony, quicksilver, sulphur, and limestone. The country has been developed considerably since the First World War by the extension of land under cultivation, irrigation, and the estab. of good production and textile industries. There is fishing on Lake Issyk-Kul. K. supplies coal to almost the whole of central Asia. Frunze (formerly Fishpek), the cap., is a well-built city (pop. 155,000) with many fine buildings. Pop. 1,400,000.

**Kiria**, see **KERYA**.

**Kirin**, or **Girin**: 1. Prov. of Manchuria, to the N. of Korea and S. of Russia, with an area of 116,135 sq. m. The country itself is fertile even in the mountainous distr. Millet, wheat, barley, potatoes, rice, tobacco, and sugar-beet are produced, but the greatest product is soya-bean, about 2 million tons per annum. Timber in the Changpaishan ranges covers an area of 17 million ac. Among minerals are gold, copper, iron, and coal. Mink fur is also produced in quantity. The chief tns are Changchun (the cap.), Yungchi (K.), Yunchun, Shuangcheng, and Kiamusze. Pop. (1954) 11,290,073.

2. Or **Yungchi**, once cap. of the prov. of the same name, situated on the Sungari, 245 m. NE. of Mukden. A railway connects it with Changchun. Pop. (1951) 230,000.

**Kirjath-jearim**, tn in anct Judah about 10 m. W. of Jerusalem. Here the ark rested until taken up to Jerusalem. It was the home of the prophet Uriah.

**Kirjath-sopher**, according to Judges 1. 11, was the older name of Debir (Tell Beit-Mirsim), which has been excavated.

**Kirk**, Sir John (1832-1922), administrator and naturalist, b. near Arbroath. He was educ. for the medical profession and, after serving as a doctor in the Crimean War, went out as physician and naturalist with Livingstone's second exploring expedition (1858). His African experiences led to his appointment as vice-consul at Zanzibar (1866), and in 1873 he became consul. It was in this capacity that he so distinguished himself

by securing the extinction of the slave trade in the dominions of the Sultan of Zanzibar. K. retired from the consular service in 1887, though he subsequently represented the Brit. Gov. at various African conferences. He was one of the first 4 white men to see Lake Nyasa (16 Sept. 1859), and his name is perpetuated in Nyasaland in the K. Range, W. of the Shire R. Received the gold medal of the Royal Geographical Society in 1882. His botanical collections laid the foundation of the *Flora of Tropical Africa*, which was pub. under gov. auspices, 1868-1917. See Sir R. Coupland, *The Exploitation of East Africa, 1856-1890*, 1939, which is in effect a study of K.'s career.

**Kirk o'Shotts**, see **SHOTTS**.

**Kirk Session**, see **PRESBYTERIANISM**.

**Kirkburton**, tn in the W. Riding of Yorks, England, about 5 m. SE. of Huddersfield. It manufs. woollen goods, and coal-mining is carried on. Pop. 17,800.

**Kirkby-in-Ashfield**, urb. dist. and tn of Notts, England, 12 m. NE. of Nottingham, and centre of an extensive coal-mining area. Pop. 20,340.

**Kirkby Lonsdale**, mrkt tn of Westmorland, England. The Devil's Bridge crosses the R. Lune. Pop. 1300.

**Kirkby Moorside**, mrkt tn in the N. Riding of Yorks, England, on the R. Dove, 6 m. W. of Pickering. It manufs. iron ware, agric. implements, and light aircraft. Pop. (tn) 2067; (rural dist.) 4785.

**Kirkby Stephen**, mrkt tn in Westmorland, England, on the R. Eden, 10 m. SE. of Appleby. Limestone quarrying is carried on in the vicinity. Pop. 1700.

**Kirkcaldy**, or **Kirkaldy**, of **Grange**, Sir William (c. 1520-73), Scottish soldier and politician, was early won over to the Protestant party, and having assisted in the murder of Cardinal Beaton (1546) took refuge in St Andrews Castle, and, on its surrender to the French, became a prisoner of the enemy and was confined in Mont St Michel, Normandy. Soon, however, he made good his escape, and after serving with distinction in the Fr. Army returned to Scotland in 1557. At home he proved zealous in the cause of reformation, was implicated in the murder of Rizzio, and having joined the nobles against Bothwell received the surrender of the queen at Carberry Hill (1567). Her defeat at Langside in the same year was largely the outcome of his able strategy; but henceforward, prevailed on, it seems, by the plausible arguments of the subtle Maitland of Lethington, he became Queen Mary's stalwart champion. As governor of Edinburgh Castle he proceeded to fortify it for the royalist faction. In 1572 he broke off negotiations with the regent Morton, preferring to stand 'stiff upon his honesty' and not betray his friends. He surrendered on 3 June 1573, and was executed at the cross of Edinburgh. See lives by J. Grant, 1849, and L. A. Barbé, 1897.

**Kirkcaldy**, royal burgh (c. 1450) and seaport of Fifeshire, Scotland, on the Firth of Forth, 15 m. N. of Edinburgh. The tn

itself has been called the 'Lang Toun,' its main street being about 4 m. long. The par. of Abbotshall has been amalgamated with K. since 1876, and in 1930 the burgh of Dysart was annexed to K. The earldom of Dysart dates from 1643. K. was the bp. of Adam Smith. The tn is the centre of linoleum manuf., and is also engaged in bleaching, linen manuf., engineering, and iron-founding. Pop. 50,500.

**Kirkcudbright:** 1. Maritime co. in the S. of Scotland, bounded on the NW. by Ayr, on the NE. by Dumfries, on the S. by the Solway Firth, and on the SW. by Wigton. The coast is rocky and much indented, and the surface of the co. is mountainous, the highest point being Mt Merrie (2764 ft.). The prin. rivs. are the Dee, Urr, and Cree. Granite is quarried in the co., and the pasturage is good; the rearing of cattle—especially of the polled Galloway breed—and dairy farming, with almost exclusively Ayrshire herds, are the prin. occupations. K. is noted for its honey. The chief tns are Castle Douglas, Dalbeattie, and Kirkcudbright. With Wigtownshire, K. forms the parl. constituency of Galloway, returning 1 member to the House of Commons. Area 897 sq. m.; pop. 30,750.

2. Royal burgh and co. tn of Kirkcudbrightshire, Scotland, situated on the l. b. of the Dee. It has a good harbour. There are remains of a 13th-cent. church and of a 16th-cent. castle. Pop. 2800.

**Kirkdale Cave**, cavern in a limestone rock in the N. Riding of Yorks, about 2 m. WSW. of Kirkby Moorside. This cave, which was discovered in 1821, contains the fossil remains of animals, among which are the hyaena, tiger, and hippopotamus.

**Kirkenes**, tn in Finnmark, Norway, near the Russian border, on the shore of Varanger Fjord. K. was the main Ger. base for submarine attacks on allied convoys to Murmansk in the Second World War, and was liberated by the Russians in Oct. 1944. Though practically destroyed during the war, K. has now been rebuilt. It is a port for the shipment of iron ore from the nearby Syd-Varanger mines, the largest mines in Norway. Pop. 4000.

**Kirkham**, mrkt tn in the co. of Lancs, England, 8 m. WNW. of Preston. It is engaged in the cotton and linen manuf. Pop. 6482.

**Kirkintilloch**, burgh of Dunbartonshire, Scotland, 7 m. NE. of Glasgow. It has iron and steel foundries, and switchgear and ferro-concrete works. Pop. 15,470.

**Kirkland, Joseph** (1830-94), Amer. novelist, b. Geneva, New York State. After a boyhood spent in Michigan he worked for a time as a clerk, then studied law, was admitted to the Bar in 1880, and practised as an attorney. His novels, most of which are written round the life of the early settlers, include *Zury: the Meanest Man in Spring County*, 1885, and *The McVays*, 1888. *The Captain of Company K*, 1891, tells of the Civil war, in which K. took part.

**Kirklarell**, formerly Kirk-Killase, 11 and tn of European Turkey, about 33 m. E. of Adrianople. For a time after the First World War the tn passed into Gk possession, but was restored to Turkey by the treaty of Lausanne, 1923. Near this tn was fought the first battle between the Bulgarian and Turkish forces during the Balkan war of 1912-13 (q.v.). It is an agric. centre, and trades in coal, wines, flour, hides, and tobacco. Pop. (11) 213,843; (tn) 14,500.

**Kirklees Park**, seat of the Armytage family for over 300 years, near Brighouse in Yorks, England. On the estate are the remains of a 12th-cent. Cistercian nunnery and the reputed grave of Robin Hood.

**Kirkley**, see LOWESTOFT.

**Kirkliston**, vil. of W. Lothian, Scotland, on the R. Almond, 10 m. W. of Edinburgh. There is a malt extract factory. Pop. 1000.

**Kirkmabreck**, par. in SW. Kirkcudbrightshire, Scotland, including Creetown (q.v.). Pop. 1301.

**Kirkmaiden**, par. in Wigtownshire, Scotland, situated on Luce Bay and in the peninsula of Galloway. It is the most southerly point of Scotland, and is mentioned as Maiden Kirk in the expression signifying from extreme S. to extreme N. of the country, i.e. 'from Maiden Kirk to John o' Groat's.' Pop. 1250.

**Kirkoswald**, vil. in Ayrshire, Scotland, 4 m. SW. of Maybole, with the graves of Burns's Tam O'Shanter and Souter Johnnie. Pop. 1800.

**Kirkstall**, par. of Yorks (W. Riding), England, 3 m. NW. of Leeds of which it forms a suburb. Here are the ruins of K. Abbey, built in the 12th cent. Pop. (par.) 10,000.

**Kirkstone Pass** (1489 ft), pass in Westmorland, England, on the Patterdale to Windermere road. It takes its name from a rock with a supposed resemblance to a church.

**Kirkton**, see CREDITON.

**Kirkuk**, tn of Iraq, in the liwa of the same name, 145 m. N. of Bagdad. Seat of an appeal court. It has valuable oil wells, and a trade in naphtha and salt. Its mosque is said to contain Daniel's tomb. Pop. (tn) 92,000, most of whom are of the Sunni religion; (liwa) 285,878.

**Kirkwall**, seaport tn and the cap. of Orkney, Scotland, situated on the NE. coast of Mainland, or Pomona. The chief buildings of interest are the cathedral of St Magnus, dating from medieval times, the earl's castle, and bishop's palace. K. possesses an excellent harbour. Distilling and boat-building are engaged in, and the tn is important for shipping and is a centre for the intense agric. cultivation of the whole co. Pop. 4348.

**Kirkwood, Daniel** (1814-95), Amer. astronomer, b. Hartford, co. Maryland, was prof. of mathematics at Delaware College (1851), and in 1856 accepted a similar post in the univ. of Indiana. He asserted that the unequal distribution of asteroids was due to the attractive force of Jupiter. The name 'Kirkwood's Gaps' has been given to certain portions of the

planotoid region in which none of these bodies is found. He also pointed out that the magnitude of the interval between any 2 planets was incompatible with Laplace's nebular hypothesis. Between 1867 and 1888 he pub. *Comets and Meteors and Asteroids*.

**Kirkwood**, city in St Louis co., E. Missouri, U.S.A. There is horticulture and lime, cement, and lumber industries. It was incorporated in 1865. Pop. 18,640.

**Kirman**, see **KERMAN**.

**Kirmanshah**, see **KERMANSHAH**.

**Kirn**: 1. Ger. tn in the *Land of Rhine-land-Palatinate* (q.v.), on the Nahe, 40 m. WSW. of Mainz (q.v.). It has woollen manufs. Pop. 8000.

2. Holiday resort, in the burgh of Dunoon (q.v.).

**Kirov** (real name **Kostrikov**), **Sergey Mironovich** (1886-1934), Russian Communist. He joined the Bolsheviks in 1905. After the Oct. revolution (q.v.) he was active in the estab. of the Soviet power in the Caucasus; in 1921 he became head of the party in Azerbaijan, and from 1926 in Leningrad. He was a Politburo (q.v.) member from 1930. K. assisted Stalin in his struggle against his rivals, but after the 17th Party Congress in 1934 led the opposition in the Central Committee against Stalin's personal rule. He was assassinated in Dec. 1934 under circumstances which pointed to Stalin's complicity. His assassination started the wave of terror that culminated in the great purge (q.v.).

**Kirov**: 1. Oblast in the NE. of European Russia, occupying the basin of the Vyatka, main affluent of the Kama. It is a rolling plain partly covered with forests and marshes. K. has peat, iron ore, and phosphorite deposits. There are engineering, iron and steel (since 18th cent.), lumbering and woodworking, leather, and chemical industries, old handicrafts, coarse grain and flax growing, and dairy farming. In the 12th-15th cents. the area formed an independent Vyatka Rep., absorbed by Muscovy in 1489. It was well known for vigorous local gov. before 1917. Area 47,000 sq. m.; pop. (1956) 1,919,000, mostly Russian (since 12th cent.).

2. (before 1780 **Khlynov**, until 1934 **Vyatka**) Cap., economic and cultural centre of the above, on the Vyatka. There are engineering, chemical, woodworking, and leather industries, and school equipment is produced. There is a big public library, founded by Herzen. Known since 1174, K. was founded by colonists from Novgorod, and was the centre of Russian colonisation of the area and cap. of the Vyatka Rep. Pop. (1956) 211,000 (1913, 44,000; 1920, 41,000; 1939, 143,000).

**Kirovabad** (until 1935 **Gandzha**, 1804-1918 **Russian Yelizavetpol**), tn in Transcaucasia, the second economic and cultural centre of the Azerbaijan Rep. There are many architectural monuments. Founded in the 5th or 6th cent., it was an important medieval commercial and cultural centre. It has been Russian since

1804. Pop. (1956) 111,000 (c. 1914, 60,000; 1926, 55,500; 1939, 99,000).

**Kirovograd**: 1. Oblast in S. Ukraine, on the r. b. of the Dnieper, largely on the Dnieper upland. It consists of black earth steppe with a few remaining oak forests. There are large lignite deposits. Wheat, sunflowers, and sugar-beet are grown, and cattle are raised; there are food, engineering, and coal-mining industries. The area was almost unpopulated until colonisation began in the 1740's. Area 9600 sq. m.; pop. (1956) 1,206,000, mostly Ukrainians.

2. (until 1924 **Yelizavetgrad**, then **Zinov'yevsk** till 1936, and **Kirovo** till 1939) Cap., economic and cultural centre of the above, 120 m. W. of Dnepropetrovsk. It has engineering (agric. machinery) and food industries. Founded in 1754 as a fortress, it soon became the administrative centre of New Serbia (q.v.). Before 1917 it was an important commercial tn. Jewish pogroms in Russia started in K. in 1881. Pop. (1956) 115,000 (c. 1914, 76,000; 1926, 66,000; 1939, 100,000), Ukrainians and Russians (before the war also Jews).

**Kirriemuir**, burgh, par., and agric. centre of Angus, Scotland, on the Gairrie Burn, 5 m. WNW. of Forfar. It manufs. jute cloth, and is celebrated as being the 'Thrums' of Sir J. M. Barrie's novels and the author's bp. Pop. 4000.

**Kirton**, see **CREDITON**.

**Kirsinion**, see **HALMYROS**.

**Kiruna**, tn in Lapland (q.v.), in area the largest tn in the world, includes vast iron ore minefields. Most of the mining is above ground. The iron ore is transported to the Norwegian seaport Narvik by rail. Many Lapps are nowadays employed at the minefields. Pop. 21,480.

**Kirwan**, **Richard** (1733-1812), Irish chemist, whose experiments on the sp. gr.s of saline substances promoted methods of analytical chem. and won for him the Copley medal in 1782. Supported the phlogiston theory of combustion (q.v.), but later was won over to the views of Lavoisier (q.v.). Wrote *Elements of Mineralogy* (1784—long a standard work), *An Estimate of the Temperature of Different Latitudes*, 1787, and *Geological Essays*, 1799.

**Kiryu**, industrial city of Gunmaken, Japan, 60 m. WNW. of Tokyo; has manufs. of silk, gauze, and crape. Pop. 117,000.

**Kiselevsk**, tn in the Kemerovo Oblast of S. Siberia, in the Stalinsk conurbation, 35 m. NW. of Stalinsk, bordering on Prokop'yevsk. It is a major coal-mining and engineering (mining equipment) centre in the Kuznetsk Basin. Founded in the 1920's as a mining settlement in Prokop'yevsk, it became a tn in 1936. Pop. (1956) 116,000 (1939, under 50,000).

**Kisfaludy**, **Károly** (1788-1830), Hungarian poet and dramatist, b. Tét. Served in the army (1804-9), writing poetry meanwhile. He then settled in Vienna, intending to follow painting, but the success of two of his plays caused him to

turn to literature. He won the reputation of being the father of Hungarian drama and of modern Hungarian literature. With his brother he founded a literary periodical, *Aurora*, and subsequently an Aurora Society, which became a centre for young writers. After his death this society developed into the Kisfaludy Társaság, Hungary's leading literary society. His works include *Murderer*, 1808, *klára Zách*, 1812, *Ilka*, 1819, *The Tartars in Hungary*, 1819, *The Rebels*, 1819, *Irene*, 1820, *Vajda Stribor*, 1820, and *Mária Szécsi*, 1820.

**Kish**, anct city of Sumer and Babylonia (qq.v.). Excavations at the modern site, about 8 m. E. of Babylon, called Tell-el-Uheimir, or 'little red ruin-mound,' by first the French and later the Oxford-Chicago expeditions uncovered a vast Sumerian temple complex dedicated to Aruru, the earth-goddess, over which Nebuchadnezzar built the Hursagkalama temple with its twin-staged temple towers or *ziggurats* (q.v.). Rich cemeteries, reliefs, and inscriptions cover the life of the place from c. 3000 BC to 700 BC, and especially the 2 periods of great prosperity under Sargon of Agade (c. 2400 BC) and Hammurabi of Babylon (qq.v.). There are traces of 2 early flood levels in the early fourth millennium. The prin. finds at adjacent Jamdat Nasr were a distinctive pottery type and tablets inscribed with the earliest pictographic script (c. 3200-3000 BC). See S. Langdon, *Excavations at Kish*, 1924.

**Kishiněv** (Rumanian Chisinau), tn in Bessarabia, cap., economic and cultural centre of the Moldavian Rep. (q.v.). It has extensive food (wine, tinned fruit) and tobacco industries, varied light industries, and agric. engineering, and has the Moldavian branch of the U.S.S.R. Academy of Sciences (1949) and a univ. (1945). K. has been known since 1420, was Turkish in the 16th cent., became Russian in 1812 (cap. of Bessarabia), and was Rumanian 1918-40 and 1941-4. During the 19th cent. it was a major centre of trade in agric. products. The School of Horticulture and Viniculture was founded in 1842, and is of importance for the whole of S. Russia. There was a Jewish pogrom in 1903 with sev. hundred victims. Pop. (1956) 190,000 (1918, 133,000; 1939, 112,000), Jews, Moldavians, and Russians.

**Kishm**, see QISHM.

**Kishmárton**, see EISENSTADT.

**Kiskörös**, tn of Hungary, in Bács-Kiskun co., 28 m. SW. of Kecskemét (q.v.). It was the bp. of Petőfi (q.v.). It is a railway junction, and has a trade in agric. produce, flour, and fruit. Pop. 13,000.

**Kiskunfélegyháza**, tn of Hungary, in Bács-Kiskun co., 16 m. SSE. of Kecskemét (q.v.). It was destroyed by the Turks in the 17th cent., but was rebuilt in 1743. The tn is a railway junction, and the centre of a rich agric. dist., with a trade in cereals, fruit, wine, tobacco, and livestock. Petőfi (q.v.) spent his youth here. Pop. 39,000.

**Kiskunhalas** (formerly Halas), tn of

Hungary, in Bács-Kiskun co., 35 m. SSW. of Kecskemét (q.v.). It was originally a settlement of Kumania (q.v.), has an agric. market, and is known for its lace. There is a small lake (Lake Halas) near by. Pop. 34,000.

**Kiskunmajsa** (formerly Majsa), tn of Hungary, in Bács-Kiskun co., 30 m. S. of Kecskemét (q.v.). It has a trade in cereals, flour, tobacco, and livestock. Pop. 12,300.

**Kiskunság**, see CUMANIA.



*Soviet Weekly*

**KISHINĚV: THE LOCAL HISTORY MUSEUM, BUILT IN 1895**

**Kislovodsk**, health resort (since late 17th cent.) in the mineral water group of spas in Stavropol' Kray, N. Caucasus. Its mineral water, *narzan*, sold all over Russia, is good for nervous and heart troubles. There are about 125,000 patients yearly. Pop. (1956) 58,000.

**Kismayu**, port in Somalia (formerly It. Somaliland), stands near the mouth of the Juba R., in a dist. inhabited by Somali tribes; it has an excellent harbour. Pop.: 50 Italians; 50,000 Africans.

**Kismet** (an Arabic word from a root meaning 'to divide'), in Turkish and Persian means 'fate.' It is not used in the Koran, which speaks with a double voice on this problem; it enlarges on the overpowering might of God and as frequently on man's freedom of choice.

**Kiss**, form of salutation, or an expression of reverence or love, which consists in pressing or touching with the lips the lips, cheek, hands, or feet of another. Newly appointed cardinals kiss the sandal on the Pope's right foot as a symbol of veneration, and the 'K. of peace,'

*osculum pacis*, is still a part of the ritual of the mass in the E. and Rom. churches. See C. Beadnell, *The Origin of the Kiss*, 1942.

**Kissavos**, see OSSA.

**Kissingen**, Bad, Ger. spa in the Land of Bavaria (q.v.), in the valley of the Fränkische Saale (q.v.), 157 m. NNW. of Munich (q.v.). Its saline-chalybeate springs were known in the 9th cent. Pop. 15,000.

**Kistna**, see KRISHNA.

**Kisújszállás**, tn. of Hungary, in Szolnok co., 28 m. ENE. of Szolnok (q.v.). The dist. produces cereals, hemp, and livestock, and at the end of the Second World War, under the Communist regime, K. became one of the first centres of the co-operative farm movement. Pop. 15,000.

**Kisumu**, formerly Port Florence, port of Kenya Colony, Nyanza Prov., on Lake Victoria, of which it is the chief port. Altitude 3759 ft. It is a thriving, well-laid-out tn. has an international airport, and is the railway terminus from Mombasa. Pop.: 390 Europeans, 5136 Asiatics.

**Kit**, term used for a soldier's outfit. A recruit on joining the army is provided gratis with underclothing, razor, brushes, towels, mess-tin, knife and fork, and cleaning materials, and these things constitute his K. It is his duty to keep them in good order and to obtain new articles as occasion arises. In popular language his uniform and other outward accoutrements are often erroneously included in his K.

**Kit-Cat Club**, founded in 1703, ostensibly to encourage literature and art, and named after Christopher Cat (or Katt), at whose tavern it met. It ultimately became a Whig society to promote the Hanoverian succession. Among its original 39 members were Marlborough, Walpole, Addison, Steele, and Congreve. The number was later increased to 48. Kneller was one of them and painted the portraits of 44 members under the direction of Jacob Tonson, who was secretary and general manager of the club. The portraits were of a uniform size, about 36 by 28 in., which is now termed 'kit-cat.' In 1945 the National Art Collections Fund purchased these portraits for the National Portrait Gallery. In a poem of 1708 on the club and its founder we read:

'All the first members for their Place were fit,

Tho' not of Title, Men of Sense and Wit.'

But eventually one-half of the 44 were men of title, including 9 dukes. The 3 most sociable of the 5 lords of the Whig junto, Wharton and Somers and Montagu, Earl of Halifax, were Kit-Cats. See 'Kit-Cat Club Portraits' by G. M. Trevelyan, *The Times*, 10 Mar. 1945.

**Kitara**, traditional name of the empire of Bunyoro (q.v.).

**Kitchen**, see COOKERY and HOUSEWIFERY.

**Kitchen Gardening**, see GARDENING.

**Kitchen Middens**, **Kitchen Mounds**,

**Shell Heaps**, or **Shell Mounds** (*Kjokken-møddingen*), names given to the refuse heaps of various prehistoric peoples. Until 1860 they were believed to be raised beaches or glacial deposits, and little notice was taken of them. Prof. Steenstrup, a Dan. archaeologist, found that though the mounds were largely composed of shells, yet they contained fragments of animal and bird bones, pottery, and implements of stone and wood. In some cases burnt wood was found, as well as stones showing marks of fire, suggesting the stones put under the cooking-pot by gypsies to this day. Among the shells were those of oyster, mussel, periwinkle, and cockle. Two other facts—that the shells all belonged to well-grown animals, and the entire absence of gravel in any heap—proved that the natural theory was wrong, and the conclusion was that these heaps had been formed by early man as domestic refuse dumps. They have since been formally recognised as the work of Mesolithic peoples who, in addition to their fishing and fowling, gathered shell-fish. In Europe they have been discovered on the coast of the Brit. Isles, in Cornwall and Devon and Scotland, in France, Sardinia, and Portugal. They are also found on many parts of the coast of N. and S. America, Australia, and Japan. Some of the largest middens measure as much as 1000 ft in length, 200 ft in breadth, and 10 ft in depth, but most are much smaller. In Florida some of the middens examined have measured as much as 40 ft in height.

**Kitchener**, **Horatio Herbert, Earl of Khartoum** and of **Broome** in Kent (1850–1916), b. Bally Longford, Ireland. After studying at Woolwich, he entered the Royal Engineers in 1871. He was engaged on the Palestine Survey (1874–8), and then on that of Cyprus (1878–82), after which he entered the Egyptian Cavalry, and took part in the Sudan campaign of 1883–5 for the relief of Gen. Gordon, attaining the rank of lieutenant-colonel. He became governor of Suakin in 1886, and sirdar of the Egyptian Army in 1890. In that capacity he recovered Dongola in 1896, for which he was made major-general and K.C.B. In April 1898 he defeated the dervishes at the Atbara, and in the following Sept. he won the decisive victory of Omdurman, capturing Khartoum, and completely overthrowing the power of the khalifa. For these services he was raised to the peerage. During his brief stay in England at this time he raised by subscription the sum of £100,000 to found a college for natives in Khartoum, in memory of Gen. Gordon. The victory of Omdurman was followed by immediate pacification, and by the most skilful handling of the situation at Fashoda (q.v.).

When the S. African war broke out K. went (Dec. 1899) to S. Africa as chief of staff to Lord Roberts, and had a large share in organising the victorious campaign that followed. When Lord Roberts returned home in Nov. 1900 K. assumed supreme command with the rank of lieutenant-general, and brought the war to a



successful conclusion by means of a system of 'block-houses' and extensive 'drives' introduced to combat the guerrilla tactics of the Boers. Assisted by Lord Milner he arranged with the Boer leaders the terms of the peace which was signed on 31 May 1902. He was raised to the rank of viscount in the peerage, while Parliament voted him a sum of £50,000, and thanked him for his services. In Nov. of the same year (1902) he went to India to take over the chief command of the forces there, where he remained till 1909. After leaving India K. became commander-in-chief in the Mediterranean, and was raised to the rank of field-marshal. He also, about this



LORD KITCHENER

time, went to Australia, and planned the reconstitution of the commonwealth forces. He was then appointed to take over the work of agent and consul-general at Cairo, where he had an opportunity of displaying his fine qualities as an administrator. In July 1913 the khedive, on his advice, granted a parl. constitution on a more democratic basis.

It was when he was at home from Cairo on leave that the First World War broke out, and it was with the universal approbation of the Brit. people the world over that he was appointed to be war minister at Whitehall. His long contact with the E., coupled with the strangely romantic circumstances of his career, had unquestionably a strong influence on his habits and general bent of mind; and the fact that he had always worked alone and with but slender financial resources from Lord Cromer's budgets, had thrown him on his own initiative to a remarkable degree, and made him at the same time intolerant and even contemptuous of criticism. His habitual practice of doing everything himself and of ignoring press and departmental criticism was incompatible with the thought of a democratic country,

especially at a time when the country was endeavouring to adapt itself to the requirements of a national war.

It was in these circumstances that he set about the performance of his great achievement—the creation, amidst the anxieties of war, of those great new armies which stemmed the tide of the enemy's successes until such time as conscription was to restore the balance. His instructions to Gen. French after the battle of Mons, to remain in the line and to abandon his expressed intention to retire behind the Seine so as to protect Paris, were amply justified by subsequent military events, though it is to be said for Gen. French that his intention was in accord with Cabinet orders to save his army from isolation by overwhelming numbers, as at Mons. The raising of the K. or new or service battalions was K.'s great contribution to winning the war, and it seems probable that he was the only man in England whose name and fame stood sufficiently high in the opinion of his fellow countrymen to ensure an adequate response to his call for volunteers. Voluntary recruiting, urged by the magic of K.'s name, added no fewer than 1,700,000 men to the ranks by May 1915. Up to this point K. was omnipotent at the War Office and in the war committee, particularly as all the best Brit. military brains were then in France. The necessities of the situation demanded, however, that one man, however eminent his talents, should not attempt to combine the role of war secretary and chief of staff, the functions of administrator and strategist being entirely distinct, and the blunders in the Dardanelles were referable to this confusion of roles and to the lack of first-class strategical direction on the general staff.

After the failure at the Dardanelles a reaction, fomented by a section of the press in conjunction with politicians, set in against K. The Cabinet grew hostile towards him. He went to the Mediterranean late in 1915, and, when there, was invited to take control in Egypt—a hint to resign the seals of office. This he did, after sending Gen. Horne to take command in Egypt in his stead. Asquith refused the resignation, and K. remained in office, though Sir Wm Robertson returned from France to become chief of staff. It is generally agreed that both K. and Asquith—the former in his ministerial capacity—unduly delayed the transition from voluntary recruiting to conscription, but the question was essentially a political one, and it is to the credit of K. that he had at all events created vast new armies to meet the nation's needs, no fewer than 3,000,000 men voluntarily enlisting in his 'service' battalions. When his tragic loss, on 5 June 1916, in the *Hampshire* became known, the sorrow of the people was the most striking possible tribute to his memory.

See J. B. Rye and H. G. Groser, *Kitchener in his own Words*, 1917; Viscount Esher, *The Tragedy of Lord Kitchener*, 1921; V. Germain, *The Truth about Kitchener*, 1926; also lives by Sir

G. Arthur, 1920; C. R. Ballard, 1930; G. Hodges, 1936; H. de Watteville, 1939.

Kitchener, co. tn of Waterloo co., Ontario, Canada, 60 m. W. of Toronto and 90 m. NW. of Niagara Falls. It is on the Canadian National Railways, with electric railway to Canadian Pacific Railway at Galt, 10 m. SE. It lies at an altitude of 1100 ft in the fertile valley of the Grand R., in a rich agric. dist., and is the market centre for the tns of Elmira and Waterloo, and the vils. of New Hamburg, Baden, Erbsville, and others. K. was first known as the Sand Hills in a community called Ebytown. The name Berlin was adopted in 1826. Berlin was incorporated as a tn in 1871 and as a city in 1912. In 1916 the name was changed to K. in commemoration of Lord K. of Khartoum. Its city hall is in the centre of a large public square, in which the war memorial has been erected. A 'living memorial' to the men and women who gave their lives in the two world wars will be the auditorium. A new armoury will complement the auditorium as the second major building in the city's proposed community centre. The federal building is an imposing structure, and one of the newer co. buildings is the registry office. K. has 38 churches, the K.-Waterloo collegiate and vocational school, a Rom. Catholic college, St Mary's business college, many primary schools, a public library, 2 large hospitals, a Little Theatre, philharmonic choir, and symphony orchestra. The giant Shand dam holds back the Grand R.'s springtime torrents and creates the 7-mile Lake Belwood. There are sev. parks and the rockery is one of the outstanding local beauty spots. The outdoor swimming pool is one of the largest in the dominion. A modern community airport has been built. There are 2 radio stations. K. is a most highly industrialised city and ranks ninth in the dominion from the standpoint of industrial production. It has about 170 manufacturing estabs., the leading plants including rubber tyres and footwear, gloves, tanning, and leather shoes. The heavy metal industries produce fans and ventilator equipment, car seat springs, trucks and trailers, woodworking and shoe machinery. Other products are veneer, fine furniture, radios, twines and ropes, textiles and shirts. There are also large meat-packing estabs. Waterloo adjoins K. K. was the bp. of Wm Lyon Mackenzie King. Pop. 55,645.

Kitching, Wilfred (1893-), *sec* SALVATION ARMY.

Kite, name popularly given to *Milvus milvus*, a species of Falconidae. It is now distributed through Europe, Palestine, Asia Minor, and N. Africa, and will breed occasionally in certain parts of N. and W. Britain. Three or four cents. ago these birds were found in great numbers in the streets of London, where they acted as scavengers. *M. milvus* is generally distinguished as the red K., its general colour being reddish-brown, with tail-feathers of a light red, barred with brown; the bill is black and strongly curved; the deeply

forked tail is capable of great expansion, and ensures the rapid, graceful flight which is such a marked feature of this bird. The habits of the K. are gregarious and sluggish, and its food consists of offal, small birds, fishes, insects, etc. Its nest, which is formed largely of rags and other rubbish, is generally placed in the cleft of a tree. *M. ater*, the black K., is very common in some parts of Europe. *M. govinda* is the pariah K. of India; *M. affinis* is an Australian species; and *M. melanotos* is confined to E. Asia.

Kites (so called from resemblance to the bird, cf. Ger. *Drache* (dragon, 'kite')), light frames of varying shapes on which some material, such as paper, silk, etc., is stretched. A cord is attached and the kite is flown in the air, the cord being let out as it ascends. It ascends by making use of the pressure of the wind on its area so as to provide a 'lift,' or component of the pressure force opposed to its weight. When made of the common diamond shape, or triangular with a semicircular top, K. have a 'tail' attached for balancing purposes. The invention of K. is ascribed by tradition to Archytas of Tarentum in the 4th cent. BC, but there is no doubt that long before this time K. had been known to the Asiatic nations and to some savage tribes. The origin of the practice of kite-flying is obscure; it is perhaps religious, and certainly still partakes of such a nature among the Maoris. The pastime has always been the national one of the Korean, Chinese, Jap., Tonkingese, Annamese, Malay, and E. Indian nations. Kite contests, i.e. pitting one kite against another with the object of bringing down the rival, were popular in Japan until after the First World War. During the same period it was not unknown for the whole population of a Jap. vil. to combine in raising a huge kite, the area of which was sometimes no less than 1000 sq. ft. But these forms of amusement have long since been abandoned, except for the flying of K. by children in the high winter winds, especially on New Year's Day. K. were used for scientific purposes in 1749 and in 1752, when Benjamin Franklin's famous electrical experiment was carried out, but their widespread use for meteorological and military purposes may be said to date from the later years of the 19th cent. At one time many observatories in the U.K. and America made constant use of K. to record not only the temp., but also the humidity of the atmosphere and the velocity of the wind at various altitudes. The K. used were mostly box or Hargrave K., so called after their inventor. K. have now been superseded in meteorological work by balloons, chiefly the radio-sonde (q.v.).

Kite Coty House, well-known megalithic structure near the vil. of Aylesford, Kent, consisting of three great sarsen stones upright with a capstone across them. It is the dummy entrance to a long barrow, the mound of which has been entirely destroyed by cultivation, although its lines have been seen on an aerial photograph.

The name is said to be derived from that of a shepherd who used to take shelter inside the monument. See MEGALITHIC CULTURE.

**Kittatinny**, see BLUE MOUNTAINS.

**Kittel**, Rudolf (1853-1929), Ger. Protestant theologian, b. Eningen, Württemberg, prof. of O.T. studies at Leipzig (1898-1924), and editor of the Heb. O.T. and numerous commentaries.

**Kittery**, seaport tn of York co., Maine, U.S.A. It is situated at the mouth of the R. Piscataqua, opposite Portsmouth, about 46 m. SSW. of Portland. Portsmouth naval base is on islands in the riv. John Paul Jones's ship the *Ranger*, the first to fly the Stars and Stripes, was launched here in 1777. Pop. 8380.

**Kitiwake**, bird of the gull family, genus *Rissa*. The chief characteristic which distinguishes the K.s from the rest of the gulls is the rudimentary condition or absence of the hind toe. The chief species are the familiar Brit. species *R. tridactyla*, with dark brown feet and white under wing-coverts, and *R. brevirostris*, from the N. Pacific, with vermilion-coloured feet and grey under wing-coverts. A third form, *R. pollicaris*, with a slightly more developed hind toe than in normal *R. tridactyla*, is recognised by some Amer. naturalists and is mostly found in the N. Pacific. The K. is about the same size as the black-headed gull and breeds in vast numbers in Greenland and Spitzbergen. It is a good swimmer and feeds chiefly on fish. The young K. is called a tarroch.

**Kitwe**, tn, N. Rhodesia, largest European pop. on Copperbelt (8000 in 1956). H.Q. of the N. Rhodesia Chamber of Mines. Nkana township is adjacent. African pop. 75,000.

**Kitzingen**, Ger. tn in the Land of Bavaria (q.v.), on the Main (q.v.), 129 m. NNW. of Munich. It has a 15th-cent. Gothic church, a Renaissance tn hall, and fine old timbered houses. The tn is an important centre of the wine trade. Pop. 17,500.

**Kiukiang**, riv. port in the prov. of Kiangsi, China, situated on the s. b. of the Yangtze, 130 m. SE. of Hankow. Tea, tobacco, fibre, paper, porcelain, and cotton are exported. The city's foreign settlement was returned to Chinese administration in 1927. The nearby Lushan (4500 ft) is famous for its scenery. Pop. approximately 90,000.

**Klungchow**, tn of China, on the is. of Hainan, belonging to the prov. of Kwangtung. Its port is Holhow, situated about 3 m. away, which was opened to foreign trade in 1876. Pop. 47,000.

**Klutsnig**, see CHÜCHING.

**Kiveton Park**, vil. and rural dist. of Yorks (W. Riding), England, 12 m. E. of Sheffield. The area is described in Scott's *Ivanhoe*, and Harthill Walk passes through the vil. The Trysting Tree is  $\frac{1}{2}$  m. from its centre. Pop. 4550.

**Kivi**, Alexsis (real name Alexsis Stenwall) (1834-1872), one of the best writers of modern Finland, and a founder of its native style, b. Nurmijärvi, of true peasant

stock. K. will live because of his great novel *The Seven Brothers*, 1870. It is the story of 7 farmer's sons who go into the farm's backwoods and carve out a demesne for themselves. All aspects of Finnish peasant life are there—the recklessness, the strong drink, the accessions of remorse and religious feeling, the love of nature and the chase, the riotous humour. A Finnish literary society had the book printed; it was acclaimed, after K.'s death, as the greatest modern production of Finnish literature. See life by V. Tarkainen (5th ed.), 1915.

**Kivu**, lake of the Belgian Congo, S. of Lake Edward and N. of Lake Tanganyika, into which it discharges by the R. Rusizi, 62 m. long. K. lies at an elevation of 4829 ft among 9000-ft mts, of which only Ninagongo and Namalagira are now active volcanoes. The tns of Bukavu, Kisenyi, and Goma are on the left shore, all of them catering for tourists. K. gives its name to an administrative dist. The surrounding highlands, being free from tsetse fly, are good grazing ground for cattle. The region is perhaps the most interesting of equatorial Africa.

**Kiwi**, see APTERYX.

**Kizel**, tn in the Molotov Oblast of the Urals, 125 m. NE. of Molotov, centre of the K. coal-mining basin stretching N.-S. along the railway K.-Chusovoy. It was founded in 1765. Pop. (1933) 40,000.

**Kizil Uzun**, see SAFID RUD.

**Kiziladalar**, see PRINCES ISLANDS.



Ministry for Foreign Affairs, Reykjavik  
JOHANNES S. KJARVAL

Kjarval, Johannes S. (1885- ), Iceland's greatest painter. He excels in landscape painting and is especially esteemed for his handling of colour.

**Kjellin Furnace**, see IRON AND STEEL.

**Kjerulf, Halfdan** (1815-68), Norwegian composer, b. Oslo (then Christiania), son of a high gov. official. Educ. for a legal career and graduated at Christiania Univ. On the death of his father he was able to devote himself to music. Actually he began his career as a teacher of music and composer of songs without ever having seriously studied music at all and he did not win recognition for nearly 10 years. Then, however, like Grieg, he received a gov. grant to enable him to study abroad. His fame rests mostly on his manly national part-songs and lyrical solo songs, but he also composed some charming pianoforte pieces.

**Kjölen Mountains** (*kjölen*, the keel), name given to the main mt system of the Scandinavian peninsula, which consists of a vast plateau grooved by deep valleys. These mts run N. and S. and form the backbone range which divides the 2 kingdoms of Norway and Sweden.

**Kladno**, Czechoslovak tn in the region of Prague (q.v.) with coal, iron, steel, and engineering industries. Pop. 40,700.

**Klagenfurt**, Austrian tn, cap. of the prov. of Carinthia, on the Glan. In 1919 it was included in the newly formed kingdom of the Serbs, Croats, and Slovenes (see YUGOSLAVIA), but was included in Austria by plebiscite in 1920. It has a Renaissance cathedral and prov. assembly house, a museum, and sev. old churches. The tn is in a fertile basin, surrounded by mts, and is near the E. end of the Wörther lake (10 m. long) with its many lidos and resorts. It has iron, chemical, textile, leather, machinery, and tobacco industries. Pop. 62,800.

**Klaipeda** (German *Memel*), tn and Baltic seaport in Lithuania. It has wood-processing industries and fisheries. Founded 1253 by Livonian knights, and from the 16th cent. an important trade centre. (For recent hist. see MEMEL). 1950-3, cap. of K. oblast (abolished). Pop. (1939) 41,000, before 1945 mostly German.

**Klamath**, riv. of S. Oregon and N. California, U.S.A., rising in the S. part of Oregon and flowing through K. Lake. It assumes a S.-westerly direction, and empties into the Pacific Ocean. Its course, which lies in a mountainous country, is through narrow canyons, and it has a length of about 263 m., but is navigable for 40 m. only. It supplies water for irrigation and hydro-electric power through Copco No. 1 Dam, in California.

**Klamath Falls**, city, cap. of Klamath co., S. Oregon, U.S.A., a lumbering and rail centre for a farming and sheep- and cattle-raising area. Pop. 15,857.

**Klang**, tn in Selangor, Federation of Malaya, situated near the K. R. It is the chief seaport of Selangor. At the mouth of the riv. is K. Is. Pop. 40,000.

**Klapka, György** (1820-92), Hungarian general, b. Temesvár, joined the Hungarian revolution of 1848, when he won sev. victories and greatly distinguished himself in the siege of Komorn, where he

continued the defence long after the main Hungarian army had capitulated. He wrote *Memoirs of the War of Independence in Hungary*, 1850, *The War of the East*, 1855, and other military works.

**Klaproth, Heinrich Julius** (1783-1835). Ger. orientalist, b. Berlin. Studied Chinese at the age of 14. Travelled in Russia, the Caucasus, Italy, and France. In 1815 he settled in Paris. In 1816 he was appointed by Friedrich Wilhelm III, King of Prussia, prof. of the languages and literatures of Asia, with permission to remain in Paris. Among his numerous works the following are outstanding: *Reise in den Kaukasus und Georgien in den Jahren 1807 und 1808* (2 vols.), 1812-1814, *Archiv für die asiatische Literatur, Geschichte und Sprachkunde*, 1810; *Asia Polyglotta*, 1823; *Mémoires relatifs à l'Asie* (3 vols.), 1824-8. He also trans. Chinese works, and was one of the founders of the Société Asiatique in Paris.

**Klaproth, Martin Heinrich** (1743-1817). Ger. chemist, b. Wernigerode. He was appointed lecturer in chem. to the Royal Artillery in 1787, and prof. at the univ. of Berlin in 1810. He was the leading Ger. chemist of his time, and discovered uranium, titanium, zirconium, and mellic acid; he also made experiments on copal and completed the discovery of tellurium. His writings include *Beiträge zur chemischen Kenntnis der Mineralkörper*, 1793-1815, and *Chemische Abhandlungen gemischten Inhaltes*, 1815.

**Klatovy** (Ger. *Klattau*), Czechoslovak tn in the region of Píseň (q.v.). It manufs. textiles, machinery, and matches. Pop. 13,300.

**Klattau**, see KLATOVY.

**Klausen Pass**, Swiss Alpine pass and carriage-road (6400 ft), connecting Altdorf in the canton of Uri with Linthal in the canton of Glarus.

**Klausenburg**, see CLUJ.

**Klausthal**, see CLAUSTHAL-ZELLERFELD.

**Kléber, Jean Baptiste** (1753-1800), Fr. general, b. Strasburg. Studied at the military academy, Munich, and served in the Austrian Army. From 1783 practised in France as architect. In 1792 he enlisted in the National Guard, and after taking part in the defence of Mainz was promoted to brigadier-general.

He fought against Fr. and foreign foes of the rep. Won the battle of Altenkirch against the Austrians in 1796. Accompanied Bonaparte to Egypt; was left in command when Bonaparte returned. In 1800 retook Cairo. Assassinated by a Turk during treaty negotiations.

**Klebs, Edwin** (1834-1913), Ger. pathologist and bacteriologist, b. Königsberg, Prussia. He studied there and at Würzburg and Berlin, where he took his medical degree in 1856. He became assistant to R. Virchow in 1861 and 5 years later prof. of pathology successively at Bern (1866), Würzburg (1871), Prague (1873), Zürich (1882), and Rush Medical College, Chicago (1896). A man of restless instincts, he returned to Europe in 1900, working successively at Hanover, Berlin, Lausanne, and Bern. K. was a pioneer in

developing the bacterial theory of infection; he was first to see the typhoid bacillus (1881) and the diphtheria bacillus (1883). He investigated the pathology of wound infection and found bacteria to be present (1871). He devised a filter impervious to bacteria and was first to filter them. His experiments included the inoculation of apes with syphilis (1873) and the production of bovine tuberculosis (1873).

Klee, Paul (1879-1940), Swiss painter, b. near Bern. He studied at Munich, and in 1912 took part in founding there the 'expressionist' group 'Der blaue Reiter' with Kandinsky, Franz Marc, and August Macke. From 1920 to 1926 he taught at the famous Bauhaus, and in 1930 was prof. at Düsseldorf. On the advent of Hitler to power K. returned to Switzerland. His work was first exhibited in London in 1938, but it was not until the full-scale exhibition of 1946 that K.'s merits were fully recognised in England. In his early years he was influenced by Cézanne, Matisse, and Blake, as well as his Ger. *confrères*. His own theories were expressed in his *Über die moderne Kunst*, 1945 (Eng. trans., 1948); the artist, he says, 'does nothing other than gather and pass on what comes to him from the depths'; he uses the metaphor of the process by which soil is converted to the foliage of a tree to describe the transformation of life itself by the artist, through his medium, into a finished work. The development of his work was towards the imaginative and fantastic, though he stands somewhat apart from the surrealists. He combined a feeling for craftsmanship with an original sense of colour to reproduce the varied processes of his own subconscious, often in abstract designs to which his titles gave fanciful meanings. There is a great sensitivity about most of his work, and in many examples a gay and witty charm. See J. T. Soby, *The Prints of Paul Klee*, 1948; See also studies by W. Hausenstein, 1921; W. Grohmann, 1929; A. H. Barr, 1941; D. Cooper, 1953.

Kleist, Bernd Heinrich Wilhelm von (1777-1811), Ger. dramatist and novelist, b. Frankfurt-on-Oder. He served in the Rhine campaign of 1796, but left the service in 1799, and devoted himself to the study of law and philosophy, finally taking up literature. K. was perhaps the most gifted and also the most unhappy of the romantics, although both in his drama and novel he attains an individual style, which later influenced the realists. His first drama *Die Familie Schroffenstein*, a gloomy tragedy, appeared in 1803; this was followed by *Penthesilea*, 1808, from a Gk source; and a romantic play *Das Käthchen von Heilbrunn, oder die Feuerprobe*, the same year. Other dramas are *Die Hermannsschlacht*, 1809, and *Prinz Friedrich von Homburg*, 1821, generally considered his best work. He also wrote the first realistic comedy *Der zerbrochene Krug*, 1811, whilst his novel *Michael Kohlhaas*, 1808, is one of the best Ger. stories of its time. K.'s genius was,

however, not recognised during his lifetime, and he took his own life in 1811. See C. Braig, *Heinrich von Kleist*, 1925; S. Zweig, *Der Kampf mit dem Dämon*, 1928; T. Kaiser, *Vergleich der verschiedenen Fassungen von Kleists Dramen*, 1944.

Kleist, Paul Ludwig von (1881- ), Ger. soldier, b. Braunfels, Prussia. Served as a cavalry officer and regimental commander in the First World War. After the war he was a cavalry instructor, but on Hitler's advent to power, he was raised to the command of an army corps. Took part in the invasion of Poland in 1939. He was in command against France in 1940, in Yugoslavia in 1941 and took Belgrade, and on the S. Russian front in Aug. 1941. Early in the invasion of Russia his armoured forces led the assault on Kiev and the advance through the Ukraine. His tank forces captured Dnepropetrovsk in Aug. 1941, but his victory was nullified by the Russian destruction of the great dam at that place. On 22 Nov. (1941) he took Rostov-on-Don, but was outmanoeuvred by Marshal Timoshenko, who retook the town a week later. This set-back, though limited in its immediate scope, marked the turning-point of the campaign. In the Ger. offensive of mid 1942 he commanded the first Ger. armoured force and advanced to the foothills of the Caucasus up to Moxdok, but was then turned back by the Russian winter offensive of 1942-3. Reached the rank of colonel-general. See also EASTERN FRONT OF RUSSO-GERMAN CAMPAIGNS IN SECOND WORLD WAR.

Kleptomania, a psychopathological condition which takes the form of an irresistible desire to steal. It is not a specific disease but a symptom of psychological maladjustment symbolising an emotional want or deprivation. Hence the cause is frequently to be found in the sufferer's childhood. In court cases K. is often fraudulently pleaded as a defence.

Klerksdorp, tn in the Potchefstroom dist., Transvaal, S. Africa, 117 m. SW. of Johannesburg. There is a gold-field in the vicinity and diamonds have been found. Pop.: Whites, 9138; Bantu, 13,662; Coloureds, 974; Asiatics, 435.

Kleve, see CLEVES.

Klingenthal, Ger. tn in the dist. of Karl-Marx-Stadt, in the Erzgebirge (q.v.), 38 m. SW. by S. of Karl-Marx-Stadt (q.v.). It has manufs of musical instruments. Pop. 7000.

Klinger, Friedrich Maximilian von (1752-1831), Ger. playwright and poet, b. Frankfurt-on-Main, became an ardent disciple of Goethe. His drama, *Sturm und Drang*, 1776, gave its name to that movement in Ger. literature, characterised by exuberance of action and want of form. Another drama of his, *Die Zwillinge*, 1775, is also celebrated. From 1780 to 1830 he was employed in Russia, chiefly as head of the corps of pages. In later life he wrote sev. philosophical novels. See M. Rieger, *Klinger in der Sturm und Drangperiode*, 1880, and H. Steinberg, *Studien zu Schicksal und Ethos bei Friedrich Maximilian Klinger*, 1941.

**Klinger, Max** (1857-1920). Ger. painter, etcher, and sculptor, b. Leipzig, son of a merchant. He commenced his studies at Karlsruhe, in 1874. In 1878 his paintings and his etchings—including a series called 'Fantasies upon the Finding of a Glove'—attracted hostile criticism and suspicions of insanity, but they were later bought for the National Gallery, Berlin. He treated biblical and mythological subjects in a somewhat gruesome manner. Supplied mural paintings for Leipzig Museum and Univ. K. also produced a poly-chromatic statue, of Beethoven, 1902. See study by F. Avenarius, 1917.

**Klinsky**, tn in the Bryansk oblast of central Russia, 100 m. SW. of Bryansk. It is an important light industry centre (since early 19th cent.; chief product, woollen fabrics). K. was founded in the 17th cent. Pop. (1936) 37,000.

**Klip-das**, see HYRAX.

**Kłodzko** (Ger. Glatz), tn of Poland, in Wrocław prov., at the S. foot of the Eulengebirge, on the Silesian Neisse (q.v.), 50 m. SSW. of Wrocław (q.v.). Until 1945 it was in Lower Silesia (q.v.). It has an anct castle, and has manufs. of textiles and machinery. Pop. 24,000.

**Klondike**, small riv. situated in Yukon Ter., Canada, about 120 m. long. The region of the goldfield includes part of the basin of the riv., and also of the Indian R., the existence of the mineral in this dist. being first discovered in 1896.

**Kloof**, Afrikaans (q.v.) word for a ravine or valley, in common use throughout southern Africa.

**Kloos, Willem Johan** (1859-1938), Dutch poet and critic, b. Amsterdam; one of the leaders of the new literary group called 'the men of '80', and in 1885 founded their jour. *De Nieuwe Gids*. He surpasses his fellow writers, especially as a lyric poet, his preferred form being the sonnet. The forcefulness of his language and imagery had great influence on later Dutch poets. See K. H. de Raaf, *Willem Kloos*, 1934.

**Klopstock, Friedrich Gottlieb** (1724-1803), Ger. poet, b. Quedlinburg. He studied theology at Jena and Leipzig. Early in life he felt called upon to write a great religious epic, and finally chose the Messiah as his theme. The first 3 cantos appeared in 1748. They were received with great enthusiasm, and K. was hailed as the deliverer of Ger. literature from the formalism of Gottsched and mere imitation of Fr. works. *Der Messias* was not completed until 1773. Written in hexameters, it is a very uneven poem, some parts of it being imbued with deep feeling and fervour, while others are flat and trivial. In 1750 K. spent some time with Bodmer in Zürich, but his conduct was too frivolous for his serious-minded host. In 1751 he received a pension from the King of Denmark, and remained at Copenhagen till 1771. K. also wrote dramas, principally upon old Ger. hist. (*Hermanns Tod*, 1757, *Die Hermannsschlacht*, 1769, and *Hermann und die Fürsten*, 1784), but their worth is small. Many of his odes (1771), however, are

imperishable. See life by Muncker, 1888; also H. Wöhlert, *Das Weltbild in Klopstocks Messias*, 1915, and I. Böger, *Bewegung als formendes Gesetz in Klopstocks Oden*, 1939.

**Kloster-Hellsbrunn**, see HELLSBRUNN.

**Klostermansfeld**, Ger. tn in the dist. of Halle, at the E. foot of the Harz Mts (q.v.), 24 m. WNW. of Halle (q.v.). It has copper industries. Pop. 6,000.

**Klosterneuburg**, Austrian tn, a NW. suburb of Vienna, on the Danube. It has the immense Baroque buildings of an Augustinian abbey, founded in 1106, and produces wine. Pop. 23,300.

**Klostern**, health resort and winter sports centre in the canton of Grisons, Switzerland, 10 m. N. of Davos (q.v.).

**Klosterzeven**, Convention of, concluded in Sept. 1757 by the Duke of Cumberland with the Fr. commander, Duc de Richelieu, by which the former, who had been defeated at Hastenbeck and was without means of retreat, agreed to disband his army and leave Hanover to the French. The convention roused extreme indignation in England and George II recalled Cumberland in disgrace.

**Klotz, Otto** (1852-1923), Canadian astronomer and seismologist, b. Preston, Ontario. Educ. at Toronto and Michigan univs. In early days he explored the NW. ters. of Canada, later carrying out an exploratory survey of Hudson Bay. He took up astronomy in 1885 and was appointed director of the Dominion of Canada Observatory at Ottawa in 1917. He wrote numerous papers on terrestrial magnetism and seismology.

**Kluck, Heinrich Rudolf Alexander von** (1846-1934), Ger. field-marshal, b. Münster; son of Karl K., gov. architect. Entered 55th Infantry, 1865; fought in wars of 1866 and 1870—twice wounded near Metz. General of Infantry, 1906. K. commanded First Army in W., to the extreme left of the Allies' line in N. France, Aug. 1914. All the advancing line received orders to halt when K.'s force was already across the Marne; and he was obliged to execute a movement that brought him within 30 m. of Paris on 6 Sept. Then followed the first battle of the Marne, ending 9 Sept. with K.'s retreat to the Aisne. Wounded in trenches, 1915, he was retired, Oct. 1916, with field-marshal's rank. His account of his last campaign was pub. in England in 1920 as *The March on Paris*.

**Kluge, Gunther von** (1882-1944), Ger. soldier. Served in the First World War. In command of the force which occupied the Polish corridor (q.v.) in 1939. Served on the W. front in 1940; in NW. Russia in 1941; commander on the central Russian front in 1942, and made commander-in-chief in W. Europe in July 1944. D. in Aug. 1944. The retirement of von Rundstedt and his replacement by von K. 3 weeks after the beginning of the Anglo-Amer. offensive of June 1944, while officially attributed to ill health, was an expression of discontent at the Ger. failure to achieve the paramount aim of repelling the allied landing. But it brought no

essential change in tactics, and no effective steps to restore a situation which was steadily deteriorating as far as defence was concerned. Von K. was himself removed after the disaster of the Falaise Gap, and was reported to have d. shortly afterwards, his place being taken by von Model, recalled from the Russian front to handle the Ger. retreat to the Rhine. See also WESTERN FRONT IN SECOND WORLD WAR.

**Klukhori** (until 1943 *Mikoyan-Shakhar*), tn in the Stavropol' Kray of N. Caucasus, on R. Kuban' and the Sukhumi Military Road, 90 m. S. of Stavropol'. It was founded in 1927 as cap. of the Karachay (q.v.) Autonomous Oblast. From 1943 to 1955 it belonged to Georgia. Pop. (1933) 3400. Renamed Karachayeysk in 1957.

**Klyuchevskiy, Vasily Osipovich** (1841-1911), Russian historian, disciple of S. V. Solov'ev (q.v.) and his successor as prof. at Moscow Univ. His works (*Foreigners' Reports on the Muscovite State*, 1866-7, *Boyar's Duma in Ancient Russia*, 1882, *The Origin of Serfdom in Russia*, 1885, *History of Social Estates in Russia*, 1886-7, and *Course of Russian History*, 1st ed., 1904-10—Eng., *A History of Russia*, 5 vols., 1911-31) have greatly influenced subsequent historians of Russia, both Russian and foreign. He was also famous as a brilliant lecturer. He took part in the constitutional movement of the *Zemstvo* (q.v.) liberals and in working out the electoral law for the first Duma (q.v.).

**Knacker** (Icelandic *knakhr*, saddle), dealer who traffics in old or disabled horses. By Brit. law a K. must slaughter the horse delivered to him within 2 days. He must not work any horse sent to him, nor sell it alive. Moreover, he must keep a full record of his transactions. He must not slaughter any animal within sight of another waiting to be slaughtered, nor must he cut off any of its hair before it is killed. To-day, however, there are persistent reports of cruelty in the traffic of exporting horses for human consumption. It is averred by some that of every 10 horses slaughtered 6 are sold on the black market for human consumption at prices three times or more the legal maximum.

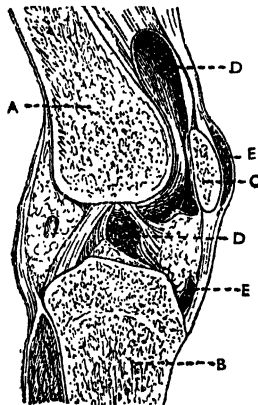
**Knapweed**, see CENTAUREA.

**Knaresborough**, tn in the W. Riding of Yorks, England, 17 m. NNW. of York. There are remains of an old castle. The grammar school was founded in 1616. There is also a 'dropping well' and St Robert's Cave. The tn manufs. linens and rugs. Pop. 8700.

**Knebworth**, mkt tn and par. of Herts, England, 9 m. E. of Luton. Here is K. House and park, home of the Lytton family since 1492, where many of Bulwer-Lytton's novels were written. Pop. 2675.

**Knee**, joint between the lower and upper leg, involving articular surfaces on the femur, tibia, and patella, or knee-cap. The articular surface of the femur comprises the greater part of the surface of the condyles, which are separated by a deep

notch, while faint transverse grooves show the limit of their articulation with the patella. The articular surface of the tibia is deepened by 2 cartilages, one on each side, known as the semilunar cartilages from their crescent shape. The patella is a heart-shaped bone; the wide upper part is concave and smooth, and is divided into 2 articular portions by a rounded ridge; the lower part is rough and non-articular. The joint is nearly surrounded by a series of ligaments of complex structure and movement. The ligaments are lined by the synovial membrane, which is the largest in the body



SECTION OF KNEE

A, femur; B, tibia; C, patella;  
D, D, synovial sac; E, E, bursae.

The movement of the K. is in general that of a hinge-joint, though a certain amount of rotatory movement is possible when the joint is moderately flexed. The mechanism of the joint is particularly adapted to maintaining the erect attitude, which involves extension of the joint. The K. is subject to the same injuries and diseases as other joints (see under ARTHRITIS; DISLOCATIONS; RHEUMATISM; SPRAINS; TUBERCULOSIS). Dislocation is not common. The patella is liable to fracture from direct or indirect violence, but is rarely dislocated. The most frequent K. injury, and one to which athletes are particularly prone, is damage to one or other of the semi-lunar cartilages, most often the internal. The cartilage is split and displaced, the loose pieces interfering with joint movement and causing sudden locking from time to time. The treatment is surgical and consists in removing the damaged cartilage.

**Kneeling** seems to have been the primitive Christian attitude for non-liturgical prayer, and also for penitents at the Liturgy, during the greater part of which

the faithful stood. At other services K. seems to have been the custom in prayer except on Sundays and during Eastertide, i.e. until the octave of Pentecost. K. was then more like prostration, and the terms are frequently used synonymously. The practice of standing at the Liturgy is retained in the E. Church and in Italy. The Canon of the Mass refers to the congregation as '*circumstantes*,' standing round the altar. Elsewhere the people almost invariably kneel for prayer. While the celebrant receives the sacrament standing, the people do so kneeling.

**Kneller, Sir Godfrey** (1646-1723), German portrait painter, who provided the link between Stuart portraiture, which had been dominated by foreigners (e.g. Sir Anthony Van Dyck, Sir Peter Lely), and the national school that was founded early in the 18th cent. *B. Lübeck*, he avoided becoming a soldier, and studied art in Holland instead. Here he took lessons under Ferdinand Bol (q.v.), and came under the influence of Rembrandt. He travelled to Italy, staying in Rome and Naples, and setting up a studio in Venice. In 1674 he came to England, intending to return to Venice, but as he quickly became extremely popular and successful he decided to settle in England, and soon set up a vast practice. He replaced Lely as chief court painter to Charles II in 1680. He married the daughter of the archdeacon of Lincoln, Susannah Crane. He was probably buried in his garden at Twickenham, but his monument by Rysbrack is in Westminster Abbey.

K. has been named the most prolific portrait painter of any country. His works number nearly 6000, among which there are almost 800 unfinished. He worked at an extreme speed. Walpole said of him: 'Where he offered one picture to fame he sacrificed 20 to lucre.' He was also more wanting in conscience than any other painter of his rank, and was inclined to be bored by his sitters—which is reflected in some of his works. He employed sev. assistants who completed and made copies of many of his works. Probably his best portrait is that of Wm Wycherley, the dramatist; and among some of his better known are those of Thomas Burnet, William III, the Duke of Portland, Charles II, James II, and sev. other people of note. K. had considerable influence upon his successors. This is shown in 2 ways: by his paintings and by his teaching. His studio was the immediate forerunner of the first real drawing school in London, at which attended most of the notable Eng. artists of the 18th cent. K.'s influence was uncertain, as his paintings varied greatly, but the fine handling of his few notable portraits did not fail to impress his successors, and of his 'Chinese Convert' (Kensington Palace) he was justly proud. *See* Lord Killanin, *Sir Godfrey Kneller and his Times, 1646-1723, 1948.*

**Kneller Hall, see TWICKENHAM.**

**Knesset**, constituent and legislative assembly of the modern state of Israel (q.v.).

**Knickerbocker Club, see CLUB.**

**Knickerbocker Families**, term applied to the people of New York who are descended from Dutch settlers. The name arose from Washington Irving's *History of New York*, 1809, which purported to have been written by one Dietrich Knickerbocker.

**Knife** (A.-S. *cnif*, a cutting implement). Of the weapons and tools found as relics of the Stone Age, the term knife is applied to those sharpened flints which were designed to be held in the hand or mounted upon a short handle to give slightly more leverage for cutting. The manifold uses to which a K. can be put give it great importance in the development of races. As distinct from the dagger, which is always two-edged, the prime importance of the K. is its use as a tool; its use as a weapon can easily be seen to be secondary, as only its ready accessibility favours its adoption in preference to more specialised weapons. Bronze K.s have been found amongst relics of the Bronze Age, and the use of iron was common long before hardened steel became the estab. material for the making of K.s.

From a remote period in Eng. hist. the manuf. of K.s has been associated with the tn of Sheffield in Yorks. The earliest form of steel K., a blade of steel fastened rigidly to a wooden or horn handle, was followed by the Jack K., which closed into a groove in the handle, in the 16th cent. In the 17th cent. the pocket K., with spring back, was introduced, and has developed with increase in the number of blades and improvement in workmanship ever since. K.s are made usually of shear steel, the various processes being forging, hardening, tempering, grinding, polishing, and finishing. Sometimes the less essential parts of the K., such as the tang by which it is fastened to the handle, are made of malleable iron which is welded to the cutting portion. Among various forms of K.s may be mentioned pocket, table, carving, hunting, surgical, butchers', shoemakers', and pruning K.s. Many tribes of the Nile and Congo dists. are very expert in throwing K.s as a method of attacking animals.

**Knight, Charles** (1791-1873), author and publisher, b. Windsor. After serving his apprenticeship with his father, a bookseller, he went to London in 1822 and founded *Knight's Quarterly Magazine*, to which Macaulay and other rising literary men contributed. In 1827 he became associated with the Society for the Diffusion of Useful Knowledge; as publisher to the society he was a pioneer in furthering popular instruction by means of cheap pubs. He issued the *Penny Magazine*, 1832-45, *Penny Cyclopaedia*, 1833-44, *Pictorial History of England*, 1837-44, and also ed. the *Pictorial Shakespeare*, 1838-41. His *Popular History of England* appeared in 8 vols., 1856-62, and in 1860 he was appointed publisher of the *London Gazette*. He wrote sev. books, including an autobiography, *Passages of a Working Life*, 1863-5. *See* life by A. Clowes, 1892.



**Knight, Eric Mowbray** (1897-1943), novelist, *b.* Menston, Yorks. He went to the U.S.A. in 1912, and became naturalised just before his death. He served with the Canadian forces in the First World War, and with the Amer. Army in the Second, attaining the rank of major. He was killed in an aeroplane crash while on an official mission. Among his novels are *Song on Your Bugles*, 1936, *The Flying Yorkshireman*, 1937, *The Happy Land*, 1940, *This Above All*, 1941, and *Lassie Come Home*, 1941.

**Knight, Dame Laura**, painter, daughter of Charles Johnson, *b.* Long Eaton, Derbyshire. She was educ. at Brncliffe, Nottingham, and studied at Nottingham School of Art. She won the gold, silver, and bronze medals, S. Kensington, and the Princess of Wales scholarship. Married Harold K., 1903, the year she first exhibited at Royal Academy. Represented in art galleries all over Eng.-speaking world. She and her husband have lived at Staithes, Yorks, in Holland, and at Newlyn, Cornwall. D.B.E., 1929; A.R.A., 1927, and R.A., 1936. First woman to become a full member of the Academy since Angelica Kauffmann and Mary Moser. Pub. *Oil Paint and Grease Paint*, 1936.

**Knight, Richard Payne** (1750-1824), connoisseur, *b.* Herefordshire. The jour. which he kept when he visited Sicily with the Ger. painter, Philip Hackert, was trans. and pub. by Goethe in his biography of Hackert. His magnificent collection of coins, bronzes, pictures, etc., was bequeathed to the Brit. Museum. He was regarded as an authority on anc. art, and was vice-president of the Society of Antiquaries. His works include *An Analytical Essay on the Greek Alphabet*, 1791, and *An Inquiry into the Symbolical Language of Ancient Art and Mythology*, 1818.

**Knight, Sarah Kemble** (1666-1727), Amer. diarist, *b.* Boston. Her father, Thomas Kemble, was a merchant, and she married Richard K., a shipmaster. She kept a writing school, which Benjamin Franklin is said to have attended, and later moved to Connecticut, where she speculated in land and kept a shop. Her *Diary*, printed in 1825, gives an interesting picture of the life of the early settlers.

**Knight, Thomas Andrew** (1759-1838), horticulturist, *b.* Herefordshire. He was awarded the first Knightian medal, founded in his honour in 1836, and was president of the Horticult. Society, 1811-1838. He wrote *A Treatise on the Culture of the Apple and Pear*, 1797, *Pomona Herefordiensis*, 1811, and over 100 papers, some of which were pub. in 1841.

**Knight-Service**, system of land tenure in feudal days, introduced after the Norman Conquest. The king divided the land amongst his tenants-in-chief, who rendered him K.-S. in return, i.e. they had to provide so many knights for service in the field according to the amount of land (knights' fees) held, and were also liable for certain fees. Tenure by K.-S. was abolished in 1660.

**Knighthood**, word which in its origin was intimately bound up with the class of military tenants of the feudal system. It is purely a matter of antiquarian interest whether the term knight (O.E. *cniht*, a boy) ever superseded or was ever synonymous with the Lat. *miles* or the *gesith* or *comes* of Tacitus, or whether it applied solely to the military tenants of a baron or earl exclusive of those of the king himself. But it is at least certain that under the feudal system as introduced by the Conqueror and developed under Henry II the military strength of the nation was measured by the number and efficiency of the knights whom the king was able to summon to the field, and a knight then meant no more than a person whose holding of land was on condition of performing military service for the sovereign (knight's fee or tenure in chivalry). Chivalry was practically a synonym for K., but was not used with the same utilitarian connotation, and is rather to be regarded as a semi-religious, semi-epic growth of the feudal system, which reached its flower of perfection during the crusades. The Church early threw its aegis of solemnity over the formal investiture of a youthful knight into the profession of arms and inculcated in him those virtues which we habitually associate with the word chivalry. The institution of the celebrated military orders of the Knights Templars and the Hospitallers, or Knights of St John, was the direct result of the crusades. The members of these orders were pre-eminently and primarily soldiers of the Cross, whatever charges of misbegotten wealth, worldly living, idleness, and heresy may with justification be hurled against their representatives of a later age. These knights have ever in the popular imagination existed as an almost legendary class of men, far more heroic than the mere tenants in chivalry of the feudal system. Nor is this remarkable, because their primary object being to repulse the infidel, their orders were essentially cosmopolitan and attracted the pick of knight-errantry, and the honour of K. was conferred upon their members by various European monarchs quite irrespective of any property qualifications, for the most part purely on account of military distinction. But side by side with these orders existed the knights of the feudal system, and indeed this territorial K., as it may be termed, and chivalry in its more appropriate sense declined together. In England even in the Middle Ages K. was not by any means an unquestionably desirable honour if, as contemporary chronicles show, the king was frequently obliged to resort to constraint to compel those who held the knights' fees (land of about £20 ann. value) to take the order of K., or prove that they were qualified to take the field as knights. This practice soon developed into a lever for inducing tenants to compound with the king by way of fine (*scutage*), and ultimately into a process for extorting money from those who would have been exempt at common

law, which regulated the amount of a knight's fee by the sufficiency of the land to support a knight, and not by its fluctuating normal value in a debased currency. This process of extortion by compulsory K. was revived by Charles I as a means of raising money without resorting to Parliament, with the result that an Act was soon passed abolishing the prerogative of compulsory K.

At the present day the anct military origin of K. is preserved in the continued existence of the accolade or symbolical

St Patrick, the Bath, the Star of India, St Michael and St George, and the Indian Empire. Similar continental orders, equally pressing the hallowed claims of an exalted, if generally legendary, antiquity, are the order of the Holy Ghost founded by Henry III of France, and the order of the Golden Fleece of Spain. Probably the most distinguished of the Brit. orders is that of the Garter. The pretensions of that of the Bath to an equal dignity of genesis are now generally agreed to be invalid, in spite of Selden and Camden.



INSTALLATION OF KNIGHTS OF THE GARTER BY QUEEN ANNE AT KENSINGTON PALACE, 14 AUGUST 1713  
Painting by Peter Angelis.

ceremony of dubbing a man a knight by touching his head with the tip of the royal sword. K. gives precedence over esquires and other untitled persons. 'Sir' is prefixed to the baptismal name of knights and baronets, and their wives have the legal designation of 'Dame,' which in modern parlance is converted into 'Lady.' The designation 'Dame' is now, however, applied to Dames Grand Cross of the Brit. Empire (*see* DAMES). Besides those who are simply knights there are others who are members of particular orders or classes which exist in most of the European states, and owe their foundation generally to some sovereign prince. Of this class of honorary associations are the Brit. orders of the Garter, the Thistle,

For details of the different orders of K., *see* ORDERS OF KNIGHTHOOD.

**Knights Hospitallers, *see* HOSPITALIERS.**

**Knights of Columbus**, an organisation founded in the U.S.A. in 1882 as a fraternal benefit association for Rom. Catholic men by Rev. M. J. McGivney and 9 parishioners of St Mary's Catholic Church in New Haven, Connecticut. Numbering more than 640,000 members, it operates in the Amor. Union, Mexico, Puerto Rico, Alaska, Panama, Cuba, and the Philippines. Besides their normal activities in the sphere of youth-training and public relief, the K. of C. did outstanding welfare work during the two world wars.

**Knights of Labor, *see* TRADE UNIONISM IN THE U.S.A.**

**Knights of Rhodes and Malta**, *see* HOSPITALIERS, KNIGHTS.

**Knights of St John of Jerusalem**, *see* HOSPITALIERS, KNIGHTS.

**Knights of the Golden Circle**, Amer. anti-federal, pro-slavery secret society and political organisation which flourished in the N. 1855-64 and sympathised with the Secessionists.

**Knights of the Round Table**, *see* ROUND TABLE, THE.

**Knights of the Sepulchre**, *see* SEPULCHRE.

**Knights of Windsor**, *see* MILITARY KNIGHTS OF WINDSOR.

**Knights Templars**, *see* TEMPLARS.

**Knightsbridge**, name of a dist. of W. London, once a hamlet, which extends into the city of Westminster, and also into the par. of St George's, Hanover Square. It has one of the more fashionable shopping areas in London.

**Kniphofia**, genus of perennial herbs of S. and E. Africa, family *Iridaceae*, notable for their long spikes of yellow and red flowers; popularly termed Red-hot Pokers. There are 24 species; *K. uvaria* and its varieties being grown in Brit. gardens.

**Knitting**. The origins of K. are completely obscure. But we do know that 'sprang,' a form of needle weaving, has much in common with the technique of both K. and crocheting, while the fragments of Peruvian needle K. of the first cent. of the Christian era show the evolution from a 'sprang' to a K. technique.

K. was also practised in ant. times, as to-day, by fishermen; and here again we can see clearly the evolution from netting on a single stick to K. on 2 needles.

The earliest known fragment of Arabic K. is dated 7th to 9th cent. The fabric is extremely fine and worked at a tension of 36 stitches to the inch. There is a coloured geometric pattern in deep maroon on a gold ground, the colour not in use being stranded across the back of the work. The fabric itself is knitted throughout in cross stocking stitch. The interest in this specimen is that it shows a long development behind it, suggesting that K. must have been practised as early as 1000 ac. Coptic Christians learnt to knit from the Arabs and the art eventually reached Spain. From there it moved across Europe, centring in Italy and France, both countries claiming to be the originators of knitted silk hose. In France hand-K. flourished and by the 13th cent. had become one of the staple industries of the country, the knitters' guild founded in Paris being the most highly organised guild of master knitters the world has ever known. We know that in the reign of Edward IV the Fr. knitters were exporting hosiery to Britain. In Italy coloured brocaded K. worked in gold and silver thread and bright-coloured silks added its mark to this phase of the craft's development. To-day brocaded Florentine knitted waistcoats are prized by collectors, a perfect specimen of this craft being among the knitted garments at the Victoria and Albert Museum. The 16th cent. was the golden age of K. and

one still looks with wonder at the knitted carpets designed and worked by the master craftsmen during this period. In England K. appears to have estab. itself during the reign of Queen Elizabeth I as a pastime among the ladies of the court. It is recorded that a Mrs Montague presented the queen with 2 pairs of silk stockings knitted by her own hands.

Colour K., that is, producing patterned fabrics in different shades of wool and silk, would appear to have centred largely in Spain and Italy, and it has been suggested that sailors, who were saved from the wrecked Armada, carried this phase of the craft to the W. of Ireland and to the Shetlands. While this theory is disputed there is ample evidence to support its truth, for Donegal K. to-day still preserves the simple geometric designs the Spaniards mastered from Arabic sources. Many of the original Fair Isle patterns are a direct link with the Catholic tradition of Spain where they originated. In S. Austria heavily embroidered K. has been in vogue for sev. cents., the basic fabric being knitted in simple lace designs in heavy wool, the embroidery being worked in gay colours on top of the knitted fabric. In N. Germany plaited and cable fabrics have always been dominant, while in Belgium and France knitted laces, some of them almost as fine as colwobs, have added a new charm to this fascinating craft. K. reached Scandinavia during the 17th cent., Dutch craftsmen being invited by the King of Denmark to estab. themselves and their craft in that country. It is probable that in the N. of Scandinavia K. flourished at a much earlier date, as there is a long record of 'sprang' fabrics being produced there in the Bronze Age.

As London became the commercial centre of England K. moved further and further N. The first K. school was founded in York in the 16th cent., while the frame K. hosiery trade estab. itself in Leicester and Nottingham about the same period. During the 17th and 18th cents. the Yorks dales became the centre for hand K. in England, various records proving that the K. of hosiery was a thriving industry during this period. The Victorian age, following the Industrial Revolution, slowly undermined the hand K. industry, and while fishermen of the Shetlands and the E. coast fishing ports still carried on the craft, it became mainly a drawing-room hobby practised by the genteel daughters of the rising middle class who were beginning to dominate the domestic life of the Brit. Isles. It is a notable fact that wars have always produced a revival of hand K. The Balaclava helmet was the forerunner of knitted comforts for the troops that once again commanded our attention during the last 2 European wars. The spinning of hand-K. wools by reputable firms and production of K. books and K. leaflets giving simple instructions how to produce knitted garments at home have contributed largely to the development of K. to-day. The latter are a direct development from

the K. patterns that can be found in many of the gentlewomen's magazines of the Victorian era. K. worked on big needles and with very thick wool is very popular for pullovers and cardigans of all varieties. In England the larger numbers denote a smaller needle and in America the reverse is true. An Eng. No. 12 is an Amer. No. 1; an Eng. No. 11 is an Amer. No. 2, and so on.

Home K. machines are of various types: the latch, the open needle or pin, and circular. All types are easy to use and the worker requires very little tuition, which is given free. *See also* HOSIERY.

The knitter's craft itself is very simple, requiring only a set of K. needles, a ball of wool, cotton, silk, or linen. A single loop is made on the end of the fibre that is being used and from this loop the stitches are cast on to the needles, the basic action of the craft consisting of transferring the loops from one needle to another, 'weaving' the new set of loops transferred on to the second needle from the first set of loops by passing the point of the second needle through the loop, wrapping the fibre over the point of the needle, and then passing the loop over the fibre wrapped round the needle. By working across the back of the loops a purl stitch is produced, K. and purling being the foundation stitches out of which the most simple or elaborate patterns are created. To-day we seem to be moving into another golden age of K., and many firms of K.-wool spinners throughout the world are doing much to preserve the ancient traditions of this simple and lovely craft. *See Mary Thomas's Dictionary of Knitting Patterns*, 1943; *Mary Thomas's Knitting Book*, 1948; J. Norbury, *The Knitter's Craft*, 1950; *Knit with Norbury*, 1952; also *Vogue Knitting Book* (biennially) and *Stitchcraft* (monthly).

**Knoblock** (**Knoblauch**), Edward (1874-1945), dramatist, b. New York City. Of Ger. extraction, he was educ. at Berlin and Harvard, where he studied drama. Coming as a young man to London, he gained experience of the theatre by writing, adapting, and translating plays. In 1906 his adaptation, *The Shulamite*, was produced at the Savoy, and the next year he became reader of plays at the Kingsway Theatre. After visiting Tunis and Kairouan to study local colour, he wrote the play *Kismet*, which was produced at the Garrick Theatre in 1911 with great success by Oscar Asche. In 1912 appeared *Milestones*, the comedy of three generations of a family, in which he collaborated with Arnold Bennett, and which became one of the most famous plays of the period. After collaborating with Tom Pellatt ('Wilfrid Coleby'), the schoolmaster, in the play *The Headmaster*, he produced *My Lady's Dress*, 1914, which is considered by some to be his best play, though others think that his *Marie-Odile*, 1915, a study of the true innocence of women, surpassed it. During the First World War he became naturalised and changed the spelling of his name, devoting himself to the service of the French in

Britain. In 1931 he dramatised J. B. Priestley's *The Good Companions*. His book of reminiscences, *Round the Room*, appeared in 1939.

**Knook**, par. and vil. of co. Mayo, Rep. of Ireland, 7 m. N.E. of Claremorris. K. is renowned as the scene of apparitions (the first on 21 Aug. 1879) of the Blessed Virgin, which are the subject of eccles. inquiry, and the little church is now visited by vast throngs of pilgrims. Pop. (of vil.) 300.

**Knock-knee** (*Genu valgum*), condition in which the knees are close together and the feet widely separated. In infants it is usually the result of rickets (q.v.), which is now a rare disease. K. sometimes results from injury to the femur, such as a fracture, and when this occurs in adults it may need an operation to correct the deformity. K. is the opposite to bow-legs (*Genu varum*, q.v.).

**Knocking**, detonation, explosion of petrol-air mixtures in the cylinder of internal-combustion engines, caused by too high a compression ratio. It may be overcome, at least in part, by the addition to the petrol of 'anti-knocks' such as aromatic hydrocarbons, alcohol, or lead tetra-ethyl (q.v.).

**Knockmealdown**, mt range, 12 m. by 4½ m., in the S. of Tipperary and the N.W. of Waterford, Rep. of Ireland. The highest summit is 2609 ft.

**Knokke**, tn in the prov. of W. Flanders, Belgium, 10 m. N.N.E. of Bruges. Its extensions along the N. Sea, called Albert-Strand (Albert-Plage) and Het Zoute (Le Zoute), range among the most modern seaside resorts of the Belgian coast. K. has a famous casino-kursaal and an aerodrome. Pop. 12,400.

**Knole**, one of the largest private houses in England, situated in K. Park, 1 m. from Sevenoaks, Kent. It was begun by Thomas Bouchier, Archbishop of Canterbury, in 1456, but greatly extended, c. 1603, by Thomas Sackville, 1st Earl of Dorset (q.v.), to whom it was granted by Queen Elizabeth I. The state rooms contain a large number of historic pictures, rare furniture (e.g. the K. settee), rugs, and tapestries dating from the early 17th to the late 18th cent. It was given in 1946 by the 4th Lord Sackville to the National Trust, although the family retain a lease of part of the house. *See* L. Sackville-West, *Knole House*, 1906, and V. Sackville-West, *Knole and the Sackvilles*, 1934.

**Knollis**, or **Knollys**, Sir Francis (c. 1514-1596), Eng. statesman, educ. at Oxford, descendant of Sir Thomas Knollys (d. 1435, lord mayor of London). He fought for Edward VI in Scotland, and was knighted in 1547. His strong Protestant convictions forced him to leave England in Mary's reign, but he returned under Elizabeth I, and was sent by her on a mission to Ireland (1566), and later to take charge of Mary Queen of Scots (1568-9).

**Knollys**, Francis, 1st Viscount (1837-1924), courtier, private secretary to Edward VII when Prince of Wales from

1870 to 1901; and from 1901 to 1910; also private secretary to George V from 1910 until 1913. K. was created 1st Baron Caversham in 1902, and 1st Viscount K. in 1911.

**Knossos** (Lat. *Cnossus*), anct city of Crete (q.v.). The excavation of the Palace of Minos during the present century by Sir Arthur Evans (q.v.) is among the most spectacular and most important achievements in the hist. of archaeology, revealing Crete as the fountain-head of Aegean Civilisation (q.v.). See A. J. Evans, *The Palace of Minos*, 1921-36, and J. D. S. Pendlebury, *A Handbook to the Palace of Minos, Knossos*, 1955.

**Knot** (O.E. *cnotla*, from a Teutonic stem *knutt*, cf. *knit*), in cordage, an intertwined loop of rope, cord, string, or any flexible material, used to fasten a rope to an object or to another rope. The various methods of fastening are known by the technical names of K.s, bends, hitches, seizings, and splices, all of which, save the last two, would be termed varieties of K.s by the layman. 'Bends' and 'hitches' are methods of fastening ropes together or round spars, etc.; 'seizings' (Fr. *saisir*) are ways of fastening two spars to one another by a rope, or two ropes by a third; 'splices' (cf. split) are made by weaving the ends of two ropes together (see below). The principle on which all are constructed is that the strain they bear shall serve to draw them tighter. Among the various kinds of K.s used on board ship for different purposes may be mentioned: figure of eight, bowline, running bowline, half-hitch, clove hitch, Blackwall hitch, double Blackwall hitch, cat's paw, marlinspike hitch, fisherman's bend, timber hitch, Carrick's bend, sheet bend, single and double wall K.s, Matthew Walker, inside clinch, midshipman's hitch, Turk's head, Sp. windlass, shroud K., Flem. eye, racking seizing, diamond K., etc.

Splices are methods of fastening two ropes together in such a way that there is no great increase in size or decrease in efficiency and strength at the point of junction; there are three main kinds, the short, the long, and the eye splice.

The short splice is formed by unlacing the strands of the rope for a short distance, 'marrying' them, and passing them over one strand and under the next, twice each way, with the aid of a marlin-spike. Before being turned in a second time the strands are halved, the upper half only of each strand being turned in; all the projecting strands are then cut off neatly. In a long splice, not only are the ends unlaid for three times as long as in the short splice, but one of the strands of each rope is unlaid for a still further distance, thus making the splice firmer. An eye splice is made by unlacing the strands of the rope and placing them upon the same rope, spread at such a distance as to give the right size of loop for the eye required. A splice is then made in a similar manner, and when projecting ends have been trimmed, the part disturbed is bound tightly round with a hard line.

In a scientific sense a K. is a physical

line, i.e. a flexible inextensible line that cannot be cut, that cannot be deformed into a circle. J. B. Listing (1802-82) was undoubtedly the pioneer of the scientific study of K.s; in his *Vorstudien zur Topologie*, 1848, he gives in a few pages what is evidently only a précis of his observations on the subject. Prof. P. G. Tait treated of K.s according to their 'knottiness,' 'be-knottiness,' and 'knotfulness' in his paper to the Royal Society of Edinburgh (see *Transactions Royal Society, Edinburgh*, xxviii. 145, 1876-7). He applies the name of 'amphicheiral' (*αμφι* and *χειρ*) to K.s which can be deformed into their own perversion, that is, their image in a plane mirror. It has been shown that any K. can be represented by three plane curves, none of which has double points and of which no two intersect, and C. F. Klein has proved (*Mathematische Annalen*, ix. 478) that K.s could not exist in space of four dimensions. In addition to the works cited above, see T. Bowling, *Book of Knots*, 1866; J. T. Burgess, *Knots, Ties, and Splices*, 1884; C. W. Ashley, *The Ashley Book of Knots*, 1947. (See illustration, p. 514.)

**Knot**, *Calidris canutus*, bird of the snipe and curlew family (Scolopaciidae). It differs from the snipe, curlew, and woodcock in having a much shorter bill and legs. In winter the plumage is ashy-grey above with white underparts, but during the breeding season the mantle is blackish and the head and breast are chestnut coloured. In winter it is widely distributed, occurring as far S. as the coasts of Australia, Patagonia, and Africa, though it is also found around the Brit. Isles.

**Knot**, see LOG and METROLOGY.

**Knotgrass**, *Polygonum aviculare*, ann. native of Britain, and sometimes a troublesome weed in gardens.

**Knott, Ralph** (1878-1929), architect, b. London, won the great competition for the London Co. Hall in 1908, while employed as an assistant in the office of Sir Aston Webb (q.v.). The building was considerably extended after his death.

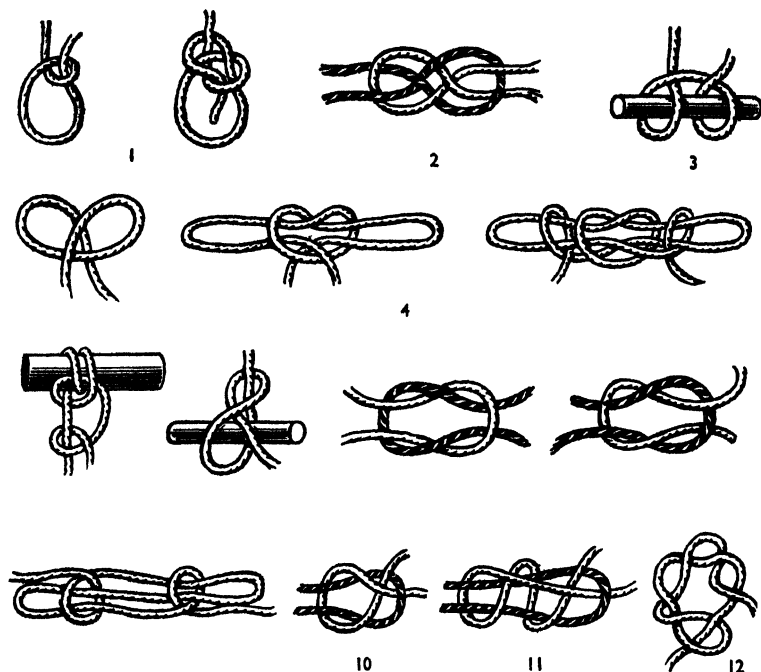
**Knottingley**, par. and urb. dist. of W. Riding, Yorks, England, on the R. Aire, 3 m. N.E. of Pontefract. There are glass bottle works, chemical works, and foundries; and light engineering, ship-building, and limestone quarrying are carried on. Pop. 10,410.

**Knout** (Russian *Knut*), whip; a special kind of K. was used in Russia as a particularly cruel instrument of punishment and torture. It was first mentioned in the Code of 1497, and finally abolished in 1845.

**Knowland, William Fife** (1908- ), Amer. politician, educ. public schools of Alameda and the univ. of California. He has been a Republican senator since 1945 and has been the Republican leader in the Senate since 1953. K. is a traditionalist Republican, and has often expressed views considerably more to the Right than those of his fellow-Republican president.

**Knowledge**, see EPISTEMOLOGY.

**Knowles, Herbert** (1798-1817), poet, b. Gomersal, near Leeds. Educ. at Richmond Grammar School, he wished to go



TWELVE KNOTS

1, bowline (in stages); 2, Carrick's bend; 3, cleve-hitch; 4, fireman's chair knot (in stages); 5, fisherman's bend; 6, half-hitch; 7, reef knot; 8, granny knot; 9, sheep-shank (shortening knot); 10, sheet bend; 11, double sheet bend; 12, timber hitch.

to Cambridge, but lacked the means; so he sent to Southey (q.v.) his poem 'Three Tabernacles,' suggested by Matt. xvii. 4, and better known as 'Stanzas written in Richmond Churchyard.' These verses, which were certainly astonishingly mature work for a schoolboy, hardly merited the extravagant praise they received at the time; they secured for K. the place he sought at Cambridge, but he d. of consumption just after his election to a sizarship.

**Knowles, James Sheridan** (1784-1862), dramatist, b. Cork, son of James K., the lexicographer. After failing in sev. callings he turned as a last resource to the writing of plays, in which he achieved considerable success. His tragedy of *Caius Gracchus* was produced at Belfast in 1815, and won much praise. Five years later his *Virinius*, suggested to him by Keats, was performed at Drury Lane. For Macready at Covent Garden he wrote *William Tell*, 1825, and 3 years later was produced *The Beggar's Daughter of Bethnal Green*. Among his other plays were

*Alfred the Great*, 1831, *The Hunchback*, 1832, and *The Chase*, 1837. In later life he became a Baptist preacher. There is a biography by his son, Richard Brinsley K., 1872. See also L. H. Meeks, *Sheridan Knowles and the Theatre of his Time*, 1934.

**Knowles, Sir James Thomas** (1831-1908), editor, b. London. Educ. at Univ. College there, he began life as an architect. He was editor of the *Contemporary Review* from 1870 to 1877, and then founded the *Nineteenth Century*, which, with Gladstone, Tennyson, Huxley, Fitzjames Stephen, Manning, and other celebrities contributing, was from the first a great success. He was made K.C.V.O. in 1903.

**Knowlesley**, vil. and par. of Lancs, England, 5 m. W. of St Helens. K. Hall has been the home of the Stanley family since the reign of Richard II. Kirkby trading estate, one of the largest in the country, is 2 m. to the N. Pop. 7200.

**Knox, Edmund George Valpy** (1881- ), humorist, was a son of the Bishop of Manchester and a brother of Ronald K. (q.v.). Educ. at Rugby and Oxford, he served

during the First World War with the Lincolnshire Regiment. In 1921 he joined the staff of *Punch*, writing usually under the pen-name 'Evoc', the Lat. cry at the festival of Bacchus, and from 1932 to 1949 he was editor. His collections of light verse and humorous articles include *The Brazen Lyre*, 1911, *A Little Loot*, 1919, *Parodies Regained*, 1921, *These Liberties*, 1923, *Quaint Specimens*, 1925, *Here's Misery!*, 1931, and *Folly Calling*, 1932. He also ed. an anthology of *Humorous Verse*, 1931.

Knox, John (c. 1513-72), Scottish religious reformer, b. at Morham or Giffordgate, Haddington. From statements of K. himself it would appear that his father was a feudal dependant of the Earl of Bothwell. His mother's name was Sinclair. Little is known of his early years, but it is known that he took minor orders, and c. 1540-3 he acted as an apostolical notary in Haddington, and in 1544 he became tutor to Francis and John, sons of Hugh Douglas of Longmiddy and Alexander Cockburn of Ormiston. At the houses of Douglas and Cockburn and Crichton of Brunton he met George Wishart, whose Protestant zeal made a deep impression upon him. In 1546 Wishart was burned at St Andrews for heresy, and K., who had become his close associate, took refuge in the castle of St Andrews in the following year in order to escape arrest. The castle was held at the time by the murderers of Cardinal Beaton. K. preached the Protestant cause in the castle and par. church of St Andrews, making a profound impression. A few months later the castle was surrendered to the French and, in violation of the terms of surrender, K. and others were condemned to the Fr. galleys. K. was a prisoner in France for 18 months, and then, in Feb. 1549, he was released through the intervention of Edward VI. He went over to England, and preached at Berwick-upon-Tweed, Newcastle, and in Bucks. In 1551 he was made one of the six royal chaplains, and in this capacity took part in the revision of the second Prayer Book of Edward VI. The 'Black Rubric,' which was K.'s suggestion, remains in the Prayer Book to-day. On the accession of the Rom. Catholic Mary Tudor, K. fled to the Continent. From Dieppe he proceeded to Geneva, where he spent most of the next 18 months, interrupted only by short visits to Zürich and Frankfurt-am-Main. At the latter place he ministered to the Eng. refugees, but left owing to objections to his radical teaching. At Geneva he met Calvin, and from this time onwards it was from Calvinist Protestantism that he was to take all his inspiration. He returned to Scotland in Sept. 1555, and it was about this time that he married his first wife, Marjory Bowes. He found many of the nobles of Scotland already strongly inclined towards Protestantism. The Church in Scotland was undoubtedly enfeebled and in need of drastic measures to rid it of the abuses which were weakening it; it was to prove no match for the fervour of K. and the

self-interested greed of the powerful nobility, and its sole influential protector, the court, was fast becoming too weak to help it. K. proceeded to champion the cause of Protestantism with so much vigour and effect that his opponents compelled him to quit the country, but not before he had laid the foundations of ultimate success. He was summoned by the bishops to appear at the Blackfriars Kirk in Edinburgh on 5 May 1556, but he came with so strong a following that the prosecution was abandoned. He returned to Geneva in July 1556, and during his 3 years' residence there he sent



JOHN KNOX

over to Great Britain a series of propagandist pamphlets, including his well-known *First Blast of the Trumpet against the Monstrous Regiment of Women*, 1558.

He returned to Scotland in 1559, and never left it again for any length of time. He had been invited back by the Protestant nobles now in open revolt against the Rom. Catholic queen regent, and he advanced their cause greatly by his powerful preaching at Perth, St Andrews, and Edinburgh. His political capabilities were also proved at this time. It was mainly through his efforts that the aid of England was obtained in forcing the queen regent to send the Fr. soldiers out of the country. The death of the queen regent occurred about this time, opportunely for her opponents, and Calvinism was estab. as the religion of the country, K.'s Confession of Faith being formally adopted on 17 Aug. 1560. This was the state of things when Mary Stuart, a Rom. Catholic, who was, however, apparently prepared to tolerate her subjects' Protestantism if they would allow her free exercise of her own religion, came to Scotland in 1561. K. was no believer in such compromises. He had become minister of Edinburgh in the previous year, and felt that he had a special duty towards her, and a sermon which he

preached at St Giles, Edinburgh, in 1561 led to the first of his famous interviews with the queen, which he has so vividly described. Many of the nobles seemed disinclined to go the full length of K.'s Calvinistic ideals, but the mistakes of the queen aided his aims considerably. K., nevertheless, remained in the background for a time, and after the murder of Rizzio he deemed it prudent to withdraw to Kyle in Ayrshire. After the murder of Darnley K. came to the front again, and denounced the queen and Bothwell, acting once more with Moray, from whom he had been estranged for a time. These events and the flight of the queen to England resulted in the final overthrow of Rom. Catholicism in Scotland. K.'s work was now almost done. His imprisonment in France in earlier years had greatly impaired his health, and that, combined with his many years of strenuous agitation, began to tell upon him, but he was still a force to be reckoned with. James Melville draws a striking picture of the reformer in his later days at St Andrews, where he was so weak that he had to lean against the pulpit on his first entry, but before the sermon was ended he was 'like to ding that pulpit in blades [fragments], and fly out of it.' His last public appearance was on 9 Nov. 1572, at the induction of his successor, Lawson, to St Giles, Edinburgh. This effort greatly exhausted him, and he gradually sank, and *d.* on the twenty-fourth of the same month. Two days later he was buried in the churchyard then attached to St Giles, but now forming part of the courtyard of Parliament House. The spot where his remains lie is indicated by a plate bearing the initials I. K. K.'s first wife *d.* in 1560, and in 1564 he married Margaret Stewart, then a girl in her teens. He was survived by his second wife and by all his children.

To modern minds K. presents the character of a rugged, stern, fierce reformer, in fact, almost a fanatic; yet he had a great share in fashioning the destiny of his native country, and has left an abiding impression upon its religious life. That Presbyterianism in Scotland became, as it did, a 'popular' movement is undoubtedly largely due to K.'s magnetic personal influence. In denunciation he was supreme—in fact, the word 'Protestant' finds one of its outstanding examples in him. His eloquence and the virility of his utterances made him a valuable asset to the cause he championed, and his political ability made him far more than a pulpit force. He was in no sense a pioneer in theology, but carried into practice the stern creed of Calvin. That his idealism was exploited by the Scottish Protestant nobility for their own material ends is obvious from their rejection of K.'s first Book of Discipline, which would have used the confiscated Catholic revenues for the benefit of the Presbyterian Church and the common people, instead of (as occurred) for the personal enrichment of the nobility. K. undoubtedly inspired the Scottish Reformation, but his control of it was not quite complete. He *d.* a

national hero. The regent, the Earl of Morton, said at his graveside: 'There lies he who never feared the face of man, who hath been often threatened with dag and dagger, but yet hath ended his days in peace and honour; for he had God's providence watching over him in a special manner when his life was sought.'

See K.'s *Historie of the Reformation of Religion within the Realme of Scotland* 1584, which is his most abiding monument as a writer. See also T. McCrie, *Life of Knox*, 1813; T. Carlyle, *Heroes and Hero Worship*, 1841; P. Hume Brown, *John Knox*, 1895; A. Lang, *John Knox and the Reformation*, 1905; E. Muir, *John Knox: Portrait of a Calvinist*, 1929; Lord Percy of Newcastle, *John Knox*, 1937.

Knox, John (1720–90), philanthropist, b. Scotland, and for many years a bookseller in the Strand, London. He then retired to Scotland, devoting his energies to improving Scottish fisheries and manufs., and making 16 tours through Scotland (1764–75). His works include *View of the British Empire*... (pub. anonymously), 1784, *Observations on the Northern Fisheries*... 1786, and *A Tour through the Highlands*... 1787.

Knox, Ronald Arbuthnot (1888–1957), priest and writer, son of the Rev. E. A. K. who was afterwards Bishop of Manchester (1903–21). Educ. at Eton and Balliol College, Oxford, where he had a most distinguished career, K. was elected fellow and lecturer at Trinity College in the same univ., 1910, and chaplain, 1912. In 1917 he resigned these positions and was received into the Rom. Catholic Church, in which he was subsequently ordained. Appointed Rom. Catholic chaplain at Oxford Univ. In 1926, he resigned in 1939 in order to undertake a new trans. of the Vulgate (q.v.). The N.T. appeared in 1945, the O.T. in 1949. K. was made domestic prelate to the Pope in 1936 and protonotary apostolic in 1951. His other academic distinctions were as follows: honorary fellow of Trinity College, Oxford, 1941, and of Balliol, 1953; fellow of the Royal Society of Literature, 1950; honorary doctor of literature of the National Univ. of Ireland, 1954. His numerous writings include 3 detective stories: *The Viaduct Murder*, 1925, *The Footsteps at the Lock*, 1928, and *The Body in the Sile*, 1933; also *A Spiritual Aeneid*, 1918, *The Belief of Catholics*, 1927, *Essays in Satire*, 1928, *Barchester Pilgrimage*, 1935, *Let Dons Delight*, 1939, *God and the Atom*, 1945, *Enthusiasm: a Chapter in the History of Religion*, 1950, and *Off the Record*, 1954. Shortly before his death K. delivered the Romanes lecture at Oxford, on the art of trans., having just completed a trans. of the autobiography of St Thérèse of Lisieux (q.v.).

Knox, William (1789–1825), poet, b. Roxburghshire. He became a farmer in Dumfriesshire from 1812 to 1817, and settled in Edinburgh in 1820, following a literary career. His poetical works include *The Lonely Hearth*, 1818, *The Songs of Israel*, 1824, and *The Harp of Zion*, 1825. His *Collected Poems* appeared in



1847. See Sir W. Scott, *Journal*, i, 1891, and J. J. Lockhart, *Life of Scott*, vi, 1837.

**Knox, William Franklin** (1874-1944), Amer. statesman and soldier, b. Boston, and educ. at Alma College, Michigan. He fought with the Rough Riders in the Cuban war, 1898. He became a newspaper publisher and eventually acquired a controlling interest in the *Chicago Daily News*, in which he strongly opposed the New Deal. He commanded an artillery regiment in France in the First World War, and was Republican nominee for the Amer. presidency in 1936. From the outbreak of the Second World War he consistently supported the Allies and opposed the isolationists. In June 1940 Roosevelt appointed him secretary of the navy.

**Knoxville**, city and the co. seat of Knox co., Tennessee, U.S.A., on the Tennessee R., 165 m. E. of Nashville. It has a beautiful situation in a fertile and healthy region, and is the centre of the marble trade of Tennessee. It also manufs. cotton and woollen goods, furniture, flour, iron goods, and other articles. Here are situated the univ. of Tennessee, K. College, and the administrative H.Q. of the Tennessee Valley Authority. Pop. 124,770.

**Knutsford**, mkt tn. co. of Cheshire, England. It lies 15 m. SW. of Manchester. This tn. supposed to have derived its name from Canute's ford, is very picturesque, and is described in Mrs Gaskell's *Cranford*. There are paper works, saw mills and a joinery, and photographic works. Pop. 7000.

**Knysna**, div. and tn. of Cape Prov., S. Africa. Its magnificent scenery has made it famous as a tourist centre. The rare stinkwood grows in the K. forests and is the basis of a furniture industry. K. R., 139 m. W. of Port Elizabeth, is an excellent harbour, the bar at the entrance having an average depth of water of 13 ft 6 in. Pop.: Whites, 3144; Coloureds, 4826; others, 930.

**Koala** (*Phascolarctus cinereus*), small marsupial related to the wombats and phalangers of Australia, and known as the Australian bear. Greyish-white fur, tufted ears, and no tail. It is a vegetarian feeder, living exclusively on the leaves of certain species of eucalyptus trees. The single young one stays in the pouch for about 3 months and is weaned at the age of 6 months. The young K. changes from a milk diet to a 'pap' of eucalyptus leaves which issues from the mother's anus. This vegetable food contains no excrement.

**Kobdo**, tn and trading centre of Outer Mongolia, situated on a plateau about 4000 ft above sea level. Pop. 6000.

**Kobe**, seaport city of Hyogoken (q.v.), Japan, on the Bay of Osaka. In 1868 it was opened to foreign trade, and the city of Hyogo was opened at the same time, the former becoming the foreign residential quarter. Since 1892 the 2 tns have formed one. It possesses an excellent harbour. K. did not share the phenomenal growth of the other leading cities of Japan during the inter-war

decades; but its pop., 967,000 (1941), shows what would, by other standards, be a striking increase—50 per cent in 15 years. It has two of Japan's biggest shipbuilding yards and its industries include steel, rubber goods, cotton and chemical textiles. It was heavily damaged during the many Amer. air-raids on Honshu in 1945, especially on 4 June 1945, when large areas of K. were devastated by 500 Super-Fortresses. It was quickly rebuilt, and in 1956 had a pop. of 979,000.

**København**, see COPENHAGEN.

**Koblenz**, or Coblenz, Ger. city in the Land of Rhineland-Palatinate (q.v.), at the confluence of the Rhine and the Moselle (qq.v.), 37 m. NW. of Mainz. It stands at the site of a Rom. fort (called 'Confluentes'). From 1018 until 1796 it belonged to the elector-bishops of Trier (q.v.). In 1798 it was incorporated in France, but after the Congress of Vienna (q.v.) it was ceded to Prussia. After the First World War it became the seat of the Inter-Allied Rhineland Commission (1919-1930). During the Second World War it was severely damaged; it was taken by Amer. troops in the offensive of 15-19 Mar. 1945, which cleared the l. b. of the Rhine from K. to Bingen. In 1946 the city was made the cap. of the Land of Rhineland-Palatinate, but it was later superseded by Mainz. K. has sev. anct. churches, of which that of St Castor (largely 13th cent.) was consecrated in 836, and that of St Florin dates from the 12th cent. The palace of the last elector was built 1780-6, and there is also a fortress of the electors, part of which dates from the 13th cent. Other structures of note are the baroque tn hall and the 14th-cent. bridge over the Moselle. On the r. b. of the Rhine is the great fortress of Ehrenbreitstein (q.v.). There are machinery, paper, and piano manufs., and the city is an important centre of the wine trade. Pop. 83,000.

**Kobresia**, family Cyperaceae, a genus of perennial herbs, native to N. temperate Europe and Asia. *K. simpliciuscula* is native to Brit. moors.

**Koburg**, see COBURG.

**Koch, Johannes**, see COCCIEUS.

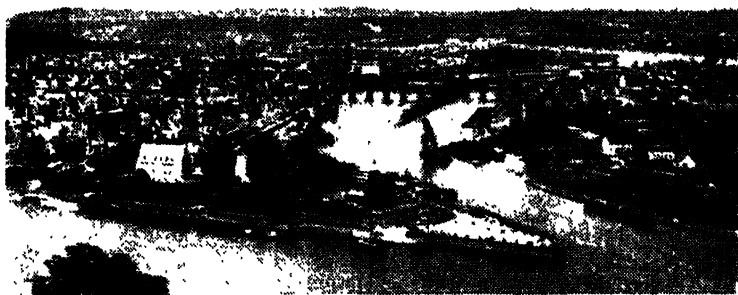
**Koch, Ludwig** (1811- ), Ger. naturalist, educ. Frankfurt-am-Main, Paris, and Milan. He was singer of *Lieder*, being a pupil of Jean de Reszke, 1905-14. K. was the first to record directly the songs of wild birds and the cries of other wild creatures, and is the originator of sound-books. Since 1936 he has lived in Britain as a naturalist, author, and broadcaster. Pub. *Songs of Wild Birds* (with E. M. Nicholson), 1936, 1937, *Animal Language* (with J. Huxley), 1938, and *Memoirs of a Birdman*, 1955.

**Koch, Robert** (1843-1910), Ger. bacteriologist, b. Klausthal and educ. at Göttingen. While in general practice he isolated the anthrax bacillus (1876), later proposing a means of preventive inoculation against the disease. He was thus the first to show a specific micro-organism as the cause of a definite disease and inaugurated the era of bacteriological research. In 1882 he discovered the bacillus of

tuberculosis, and led the cholera expedition to Egypt and India (1883), finding the cause of cholera in the comma bacillus. K. was prof. of hygiene and bacteriology at Berlin Univ. (1885) and director of the Institute for Infectious Diseases (1891). He prepared tuberculin (1890-7), by which he hoped to cure tuberculosis; it failed to prove a remedy, though valuable as a diagnostic agent. K. held that there was a distinction between tuberculosis in man and cattle and denied the possibility of transmission from one to the other, but the Royal Commission Reports on Tuberculosis (1904, 1907, 1909, 1911) disproved him. In 2 visits to S. Africa (1896 and

zur Aetiologie der Tuberkulose, 1882, Ueber die Cholerabakterien, 1884, Heilmittel gegen die Tuberkulose, 1891, Ueber neue Tuberkulinpräparate, 1897, Die Bekämpfung des Typhus, 1903. His collected works were pub. in 1912. He was awarded the Nobel prize for medicine in 1905. See study by J. Löbel, 1935, and life by B. Möllers, 1950.

**Koch, Pali, or Rajbansi**, race of India of aboriginal descent, which inhabit NE. Bengal and Assam. They are probably of Mongolian stock. The wealthier members of the race assert that they descend from Siva, and claim the title of Rajbansi or sons of kings.



German Tourist Information Bureau

#### KORLENZ

'Deutsches Eck' ('German Corner'), showing the junction of the Rhine and Moselle.

1903) K. studied the 'rinderpest' (cattle plague), investigated malaria and its causes in Ger. E. Africa (1897), and the W. African 'sleeping sickness' (1905-6). K.'s postulates state that a micro-organism is proved to be the cause of a disease when (1) the micro-organism can be isolated in every case of the disease; (2) it can be cultivated in a pure culture; (3) inoculation from such culture must reproduce the disease in susceptible animals; (4) it must be re-obtained from such animals and again grown in a pure culture. Those postulates are the pillars on which the whole of modern bacteriology rests. K. and his pupil Petri were responsible for the introduction of solid culture media, containing gelatin or agar, whereby bacteria could be isolated and grown in pure culture; Pasteur referred to this discovery as 'un grand progrès.' His works include *Untersuchungen über die Aetiologie der Wundinfektionskrankheiten*, 1878, *Ueber die Milchbrandimpfung*, etc., 1882, *Beitrag*

**Kocher, Emil Theodor** (1841-1917), Swiss surgeon, b. Bern, where he received his medical education and was prof. of surgery, 1872-1911. B. is perhaps the greatest surgeon in Swiss medicine. His prin. work was as a pioneer in the treatment of goitre by removal of the thyroid gland; he is said to have performed this operation 2000 times with a mortality rate of only 4½ per cent. Technically he was one of the great masters of surgery; his skill and perfect aseptic technique made it possible for him to do pioneer work in abdominal surgery. He also investigated intracranial pressure, lesions of the spinal cord, and bullet wounds. He received the Nobel prize for medicine in 1909 for his investigations on goitre.

**Kochi**, city of Kochiken, Japan, seat of the prefectural gov., situated on the SE. coast of Shikoku, 135 m. SW. of Kobe. An agric. and fishery centre, it is noted especially for coral goods and dried bonito. Pop. 188,000.

**Kock, Charles Paul de** (1794-1871), Fr. novelist, b. Paris, son of a Dutch banker. His novels deal mostly with various aspects of Parisian life in a witty and realistic manner. Among the chief are *Georgette ou la mère du Tabellion*, 1820, *André le Savoyard*, 1825, *Le Barbier de Paris*, 1826, *Mon Voisin Raymond*, 1837, and *Gustave*, 1842. See his *Mémoires*, 1873, and life by T. Trimm, 1873.

**Kodak**, popular photographic hand camera using roll film, characterised by ease of manipulation and portability. Trade name, belonging to K. Ltd, makers of photographic apparatus and material, of Kingsway, London, with branches elsewhere in London and provs. The controlling interest is held by the Eastman K. Co., Jersey City, U.S.A.

**Kodály, Zoltán** (1882- ), Hungarian composer, folk-song collector, and music critic; b. Kecskemét. He studied composition under Koessler and, in 1905, began to devote his attention to Hungarian folk music, in which he was associated with Bartók (q.v.). Later he made a collection of some 4000 peasant tunes, some noted orally from peasants, others recorded by phonograph, and nearly all of them from dists. the most unaffected by urb. culture. In 1919 he was appointed prof. at the Budapest Conservatory and in 1945 he became director of the Budapest High School of Music. As a composer he is best known in Britain by the orchestral suite from the musical play *Háry János*, 1926, and the *Psalmus Hungaricus* for tenor, chorus, and orchestra, given at the Three Choirs Festival of 1928. He wrote a good deal of other Church music in Latin and Hungarian, and a vast amount of secular choral music, often based on folk material, which is difficult to export on account of the Hungarian words, and the same is true of his solo songs; but sev. of his instrumental works are generally known, e.g. 2 sets of orchestral Dances, 2 string Quartets, the string Trio, the Duo for violin and cello, the unaccompanied cello Sonata and a number of piano pieces.

**Kodas Eli**, see ISMID.

**Koechlin, Charles** (1867-1951), Fr. composer of Alsatian descent, b. Paris. He studied at the Conservatoire under Massenet, Fauré, and others. He lived a retired life, devoted to composition, and never held any official teaching-post; but in various ways, not least through his theoretical writings, he exercised a considerable influence on younger Fr. composers. His output is vast and leaves hardly any category of music unprovided, and although he sought no success and obtained little, his work is of high quality and lasting interest.

**Koekelberg**, manufacturing suburb of Brussels, Belgium, 2 m. to the NW. of the city. It is engaged in the manuf. of food-stuffs, furniture, chemicals, and has dye-works and breweries. Pop. 15,100.

**Koeleria**, genus of Gramineae, contains 15 species, all of which flourish in temperate lands. *K. gracilis*, Crested Hair-grass, *K. albescent*, and *K. vallesiana* are Brit. species.

**Koffyfontein**, tn in the Orange Free State, S. Africa, situated 30 m. NW. of Fauresmith. A rich diamond mine is worked in the neighbourhood. Some of the finest diamonds in the world have been found here. Pop.: whites, 1264; others, 1700.

**Kogălniceanu, Mihail** (1817-91), Rumanian statesman, studied in Paris, and wrote at the age of 20 his *Histoire de la Valachie et de la Moldavie*, 1837. Upon his return to Moldavia he did much by his writings to pave the way for the revolution of 1848. He was a staunch advocate of the union of the 2 principalities of Wallachia and Moldavia, and in 1863 was chosen by Prince Cuza as his Prime Minister. His measures included confiscation of the property of monasteries, compulsory elementary education, distribution of land among the peasantry, and abolition of serfdom. He pub. a collection of old Rumanian chronicles (2nd ed. 1872), *Esquisse sur les Tziganes* in 1873, and other works.

**Kogarah**, metropolitan municipality of Sydney, in Cumberland co., New S. Wales, Australia, close to Botany Bay (q.v.). Pop. 44,020.

**Kohat**, tn of Pakistan in the NW. Frontier area, 37 m. S. of Peshawar. K. lies on the railway to Thal and the approach to the Kurram Pass into Afghanistan.

**Kohen, Johannes**, see COCCINUS.

**Kohinoor**, or *Koh-i-nûr*, one of the most famous diamonds in the world. When presented to Queen Victoria in 1850 it weighed 186½ carats, but by recutting it was reduced to 106½ carats. It is considered by some to be a portion of the Great Mogul diamond which was in the possession of Aurangzeb in 1665. The K. belonged in 1739 to Nadir Shah, was in the possession of the Rajah of Lahore in 1813, and was presented to Queen Victoria by the E. India Co. It is now among the Brit. crown jewels. The name means 'Mountain of Light.'

**Kohistan** (land of mts), name given to mountainous regions in Persia, Afghanistan, India, and Turkestan.

**Kohl**, or *Kuhl*. The word is derived from the Assyrian *gublu*, meaning eye-paint, and was applied by Paracelsus (1493-1544) to spirit of wine, whence our *alcohol*. K. is a finely divided black powder, generally antimony sulphide, used in the E. and in theatrical make-up for darkening the eyelids, eyelashes, and eyebrows.

**Kohlrabi**, also known as the Turnip Cabbage; a variety of *Brassica oleracea* var. *caulorapa*, distinctive in that it forms a turnip-like swelling or head bearing leaves above ground, and is hardy and resistant to drought or frost.

**Koizumi, Yakumo**, see HEARN, LAF-CADIO.

**Kokand**, or *Kokan*, formerly cap. of the old K. Khanate, now tn in the Fergana oblast of the Uzbek S.S.R., S. of the Syrdarya, 350 m. ENE. of Bokhara. It has cotton-spinning factories and silk mills. Pop. 90,000.

**Kokchetav:** 1. Oblast (prov.) of the Kazakh S.S.R. of the Soviet Union situated in the wooded steppe zone. Wheat, oats, and millet are extensively cultivated. Pop. 460,000.

2. Tn and cap. of the K. oblast. An important agric. centre with meat-packing and tanning industries. Pop. 60,000.

**Kokomo**, city, cap. of Howard co., Indiana, U.S.A., 54 m. N. of Indianapolis. It manufs. glass, steel, iron, and brass products, automobile and tractor parts, and pottery. Pop. 38,700.

**Koko-nor**, or **Kuku-nor** (blue lake), lake in Ch'inghai prov., China. The lake lies between the K'un-lun and the Nan-shan Mts. It is 60 m. in length, 40 m. in width, has an area of 2500 sq. m., and is at an altitude of 9976 ft. It has no outlet, its waters are salt and bitter, and frozen for 3 months of the year. The region of K., which lies between Tibet, Kansu, and the Gobi desert, is sometimes taken to include Tsaidam and the plateau of Odontala.

**Kokoschka**, **Oskar** (1886-), Austrian painter, b. Pöchlarn, Austria (now Czechoslovakia). He studied art at the Vienna School of Applied Arts, where his work was first exhibited; in 1907 he went to Berlin and then travelled to Italy and Switzerland. He had already a strong prejudice against formal and academic rules, and this displayed itself violently after the First World War, in which he was wounded. Both in pictures and writing he conveyed his sense of human suffering and cruelty. From 1920 to 1924 he was prof. at the Dresden Academy, later travelled in Europe, N. Africa, and Asia Minor, and was exiled from his native land when the Nazis took over, his violent expressionism placing his work on Hitler's proscribed list. K. then made his home in England and became a naturalised Brit. subject. Very individual in style and outlook, he does not conform even to modern theories in art but may be called an expressionist in his emotional appreciation of life which his many portraits and landscapes ardently convey. Among the latter, his paintings of the Thames are especially notable as spaciouly conceived panoramas. His work is represented in the public galleries of Europe and the U.S.A. He conducts an unconventional art school in Switzerland. The plays K. has written include *Der brennende Dornbusch*, 1911, *Hiob*, 1917, and *Orpheus und Eurydike*, 1916, which was set to music by Krenek in 1923. On his painting see monographs by Edith Hoffman, 1948, and J. S. Plaut, 1949.

**Kokra-wood** and **Coco-wood** are terms applied to the wood of the *Inga vera*, a leguminous tree found in the W. Indies, used for flute-making and turnery.

**Kokura**, seaport city of Fukuokaken, Kyushu, Japan, situated at a mouth of the Inland Sea (q.v.), opposite Shimono-shiki (Honshu). Important for shipping, coal, and cement. Pop. 242,000.

**Kola**, peninsula in NW. Russia, between the Barents Sea and the White Sea. Together with the adjacent mainland it forms the Murmansk oblast (q.v.).

**Kolar**, tn of Mysore State, India, 43 m. E. of Bangalore. The K. gold-fields produce nearly all the gold output of India. They cover an area of 14 sq. m., and two of the mines are 9000 ft deep.

**Kolarovgrad** (formerly **Shumla**, **Shumen**), city of E. Bulgaria, cap. of K. prov., 185 m. ENE. of Sofia (q.v.). It was founded in the 10th cent., and was successively under Bulgarian, Byzantine, and Turkish rule. It was taken by the Russians in 1878 and ceded to Bulgaria. There is a ruined fortress and there is a remarkable 17th-cent. mosque. Metal and leather goods are manuf. Pop. 31,000.

**Kolberg**, see **KOLOBRZEG**.

**Kolchak**, **Aleksandr Vasil'yevich** (1870-1920), Russian admiral and Arctic explorer, a Crimean Tartar by origin. In the First World War he commanded the Baltic, then the Black Sea fleet; in 1917 he was in America. In 1918-19 he led the anti-Bolshevik struggle in Siberia. He overthrew the Ufa Directory (q.v.) and set up a Siberian Gov. in Omsk, then was recognised by anti-Bolshevik organisations as Supreme Ruler of Russia. His initial spectacular successes were followed by a long retreat until he was taken prisoner and shot at Irkutsk. See **CIVIL WAR, RUSSIAN**.

**Kol'chugino**, see **LENINSK-KUZNETSKIY**.

**Kolding**, tn and port of E. Jutland, Denmark, on the K. Fiord, 29 m. SSW. of Horsens. The royal castle of Koldinghus, dating from 1248, was burnt down in 1808, but partly rebuilt later, now containing a museum. Main manufs. are textiles and hardware, and there are large bacon and chocolate factories. Pop. 33,170.

**Kolguev**, is. in the Barents Sea off the coast of the Archangel oblast of N. Russia. K. is covered with tundra and has few inhab. Area 1350 sq. m.

**Kolhapur**, formerly an independent feudatory Deccan state in the Bombay presidency of Brit. India, and the largest of the Deccan states. After 1933 it formed an agency with Deccan, Janjira, and other states previously in political relations with the gov. of Bombay. In 1949 it merged with Bombay state. A Marhatta principality, whose rulers were by tradition the heirs of Shivaji, the founder of the Marhatta empire 300 years ago, K. was one of the most prominent states to lose its identity rather than join one of the new groups or unions of states (see **INDIAN PRINCELY STATES**). The city of K. has both large modern buildings and very ancient temples.

**Kolhida**, see **COLCHIS**.

**Koli**, beauty spot on Ukko-Koli, Finland, highest point of K. hill chain, 348 metres above sea level. K. Tourist Inn is centre of all-year-round expeditions.

**Kolín**, or **Nový Kolín**, Czechoslovak tn in the region of Prague (q.v.) on the Labe (see **ELBE**). In 1757, during the Seven Years War (q.v.), Frederick the Great was defeated here by Marshal Daun (q.v.). K. is a riv. port, is famous for fruit and vegetables, and has engineering, petroleum

refining, and chemical industries. Pop. 20,100.

**Kolkhida**, see **COLOHIS**.

**Kolkhoz** (Russian abbrev. for collective economy), main form of agric. organisation in Soviet Russia. Statutorily a K. is a co-operative undertaking of a number of peasants, who pool their land and other means of production and are paid in kind and money according to the amount of work they put in. In fact the K.s are managed by the gov. through the M.T.S. (q.v.). Membership in a K. is automatic for those b. into it, and it is difficult for a member to leave a K. The K. system does not provide sufficient material incentives for the peasants to take an interest in their work, and their general standard of living is now probably lower than before the collectivisation of agriculture (q.v.). In 1955 there were 85,700 K.s in the U.S.S.R., embracing 19.7 million peasant households.

**Kolkwitzia**, monotypic genus of Caprifoliaceae; *K. amabilis* being a Chinese deciduous shrub with bell-shaped, pinkish flowers in terminal corymbs, in May.

**Kolmar**, see **COLMAR**.

**Köln**, see **COLOGNE**.

**Kolobrzeg** (Ger. Kolberg), tn of Poland, in Koszalin prov., on the Baltic at the mouth of the Prosnica, 25 m. W. of Koszalin (q.v.); formerly in Pomerania (q.v.). It was once a member of the Hanseatic League (q.v.), and was a salt-trading tn in the Middle Ages. During the Thirty Years War it was taken (1631) by Gustavus Adolphus (see **GUSTAVUS II**). In 1648 it went to Brandenburg (q.v.), and in 1741 it was captured by the Russians. At the end of the First World War it was the last H.Q. of the Ger. General Staff. In the Second World War the tn was almost razed. Pop. 5000.

**Kolomna**, tn in the Moscow oblast, 72 m. SE. of Moscow. It has been an important engineering centre since 1863 (locomotives, machine-tools). There are towers of a 16th-cent. fortress, and interesting 14th-18th-cent. buildings. Pop. (1956) 94,000 (1939, 75,000). Known since 1177, Muscovite outpost from 1300.

**Kolonnes**, Cape, see **COLONNES**.

**Kolonos Hippios**, see **COLONUS**.

**Kolozvár**, see **CLUJ**.

**Kol'tsov**, **Aleksey Vasil'yevich** (1808-1842), Russian poet. The son of a peasant cattle-dealer, he received no education. His poetry is mainly concerned with peasant life and nature, and in form and style is near to folklore.

**Kolyma**, riv. in NE. Siberia, rising in the plateau between the Verkhoyansk and the Cherskiy ridges and flowing NE. into the E. Siberian Sea. Length 1600 m.; basin 250,000 sq. m. In recent years a large gold-mining industry has been developed in the upper K. region (see **MAGADAN**), which is notorious for its labour camps.

**Kom**, see **QOM**.

**Komárno** (Ger. Komorn; Magyar Komárom), Czechoslovak tn in the region of Nitra (q.v.) on the Schütt is. in the Danube (q.v.). It was once a strong

point, its fortifications having been constructed by Matthias Corvinus (q.v.). Until 1920 it was in Hungary. It is a riv. port, has a textile industry, and is connected by a bridge across the riv. to the Hungarian tn of Komárom.

**Komárom**, see **KOMARNO**.

**Komárom County**, see **TATABÁNYA**.

**Komatsu**, city of Ishikawaken, Japan, 12 m. SW. of Kanazawa (q.v.). There are manufs. of silk gauze, and cast-iron, and most of the clay for the Feral and Kanazawa potteries is obtained here. Pop. 72,000.

**Komensky**, **John Amos**, see **COMENIUS**.

**Komi**, Finnish-speaking people (see **FINNS**) in the NE. of European Russia, numbering about 370,000. They are Orthodox Christians (since the 14th cent.), mostly peasants, now collectivised. They are the most civilised of the 'N. peoples' in Russia. See W. Kolarz, *Russia and Her Colonies*, 1952.



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**Komi Autonomous Republic** comprises the basins of the Pechora and Vychegda R.s. and is largely forested lowland. It has large coal (Pechora Basin) and oil deposits. There are coal-mining (since the 1930's), oil (since 1745), and timber industries; grain and dairy farming is practised. The prin. tns are Syktyvkar (cap.) and Vorkuta. The area belonged to the Novgorod rep. from the 13th cent. K. Autonomous Oblast was created in 1921, and transformed into a rep. in 1936. It is an area of banishment and labour camps. Area 156,000 sq. m.; pop. (1956) 670,000, mostly K. and Russians.

**Komi-Permyaks**, branch of the Komi people living in the NW. of Molotov Oblast, numbering about 150,000. Komi-Permyak National Dist., formed in 1929 (area 12,000 sq. m.; pop. (1956) 218,000), has grain and dairy farming and a timber industry. The cap. is Kudymkar.

**Komorn**, see **KOMARNO**.

**Komotau**, see **CHOMUTOV**.

direction. It empties into the S. end of K. lake, emerges from the W. arm at Nelson, and flowing SW. enters the Columbia R. at Castlegar. Total length 406 m. Canadian Pacific steamers ply on the lake, but the riv. itself is too rapid for traffic. Almost all the ter. it drains is highly mineralised.

**Kop** (Afrikaans 'a head'), **Koppie**, or **Kopje**, word applied throughout S. Africa to any small hill, such as the famous Spion Kop (q.v.).

**Kopais** (anct *Topolias*), see **COPAIS**.

**Kopar**, or **Koper**, see **CAPODISTRIA**.

**Kopek** (Russian *Kopeyka*), Russian monetary unit, one-hundredth of a rouble (q.v.).

**Köpenick** (formerly *Cöpeniek*), suburb of SE. Berlin (q.v.), Germany, on the Spree (q.v.), 10 m. from the city centre. It has engineering industries. K. achieved fame through the exploits of the 'Captain of K.', a shoemaker (Wilhelm Voigt), who in 1906, masquerading as a military officer, induced the burgomaster of K. to part with the municipal funds.

**Kopeysk**, tn in the Chelyabinsk Oblast of the Urals, in Chelyabinsk conurbation, 11 m. SE. of Chelyabinsk. It is the main lignite-mining centre in Chelyabinsk area, and has an engineering industry (agric. and mining equipment). It was founded as a mining settlement, and has been a tn since the 1930's. Pop. (1956) 149,000 (1938, 65,000; 1939, under 50,000).

**Kopparberg**, see **FALUN**.

**Köprülü**, or **Kuprili**, Albanian family, sev. of whose members became celebrated Turkish statesmen. The most famous are **Mohammed** (c. 1585-1661), who became grand vizier in 1656, and waged war with the Venetians, capturing from them **Leobos** and **Tenedos**. He also subdued Transylvania and fortified the **Dardanelles**. **Ahmed** (c. 1630-76), son of Mohammed, was made grand vizier in 1656. He invaded Transylvania, and though defeated at St Gotthard he succeeded in obtaining the Peace of Vasvár, by which the Turks retained the fortress of Grosswarden. **Mustapha** (c. 1640-91), brother of Ahmed, saved the life of **Solyman** (Suleiman) III during the rebellion against Sultan Mohammed IV and was, on the former's accession, made grand vizier. He carried on a vigorous campaign against the imperial forces, driving them from Bosnia and Serbia, and capturing Belgrade.

**Koprü**, see **EURYMEDON**.

**Korah**, a Levite who rebelled with **Dathan** and **Abiram** against the exclusive sacerdotal privileges of the sons of Aaron. They were swallowed up by the ground for their presumption. The sons of K. were later appointed by David to direct liturgical music (1 Chron. xxv. 4-8; vi. 33-7) and many of the Psalms are assigned to them (e.g. xlv, xlv).

**Koran**, **The** (Arabic *qur'an*, recitation, reading), sacred book of Islam consisting of the revelations made to Mohammed. The orthodox view is that it is uncreated, written on the Preserved Tablet in heaven and revealed piecemeal by Gabriel. It

was collected in book form only after Mohammed's death at the command of **Abu Bekr** (q.v.), and revised under the third caliph. It is in Arabic and is divided into 114 chapters, arranged according to length, the longest first; an exception is the short opening chapter. The earliest passages are short and emotional; warnings of the last judgment, exhortations to obedience, addresses to and praise of God, descriptions of His majesty and goodness and of man's weakness and need of Him. Then the tone becomes quieter though the matter is much the same. Stories of anc. prophets are repeated sev. times, all hinting that as punishment followed men's rejection of them, so it will follow the rejection of Mohammed. After the move to Medina new elements appear, laws, statements of policy, and defence of Mohammed's actions, both public and private. In Medina he came into contact with Jews and from them learnt much about some biblical characters, using this knowledge in his preaching; he made little use of the N.T.: he either did not know it or felt it did not serve his purpose. He learnt much from popular stories. He borrowed fearlessly; it is suggested that **Penelope**, unravelling at night what she had woven during the day, has left her mark on the K. The text of the book is sound; it can be read in 10 ways but in few cases do the variations make serious difference in the sense. Some reject the last 2 chapters, the **Shittes** (q.v.) claim that 2 have been left out, and some early sectarians rejected the chapter 'Joseph' as a worldly tale. It is the only well-told tale in the book; the others read as if they were notes to be amplified into a story. Later passages sometimes cancel earlier, a matter which is the object of much discussion. Each chapter is named, usually after a word or incident in it; e.g. the Cow, Bee, Repentance; John of Damascus refers to the Camel, a name no longer known. Mohammed is emphatic that he only restores the original true faith and is the final prophet.

See R. Bell, *Introduction to the Qur'an*, 1953. Trans. are many: G. Sale, E. H. Palmer, J. M. Rodwell, and others; M. Pickthall, *The Meaning of the Glorious Koran*, 1930, gives the modern orthodox interpretation; A. J. Arberry, *Selections from the Koran*, 1953, may be recommended to those who do not wish to read the whole book.

**Korat**, cap. of the prov. of Nakornraj-sima, Thailand. It lies 170 m. NE. of Bangkok, with which it is connected by rail. It is situated in a silk-producing dist. Pop. 731,722.

**Korčula** (It. *Curzola*; anct *Coreyra Nigra*), Yugoslavian is. in the Adriatic, part of the Dalmatian archipelago. It was ruled by the Venetians from 998 until in the 12th cent. it was taken in succession by the Hungarians and Genoans, to return to Venice in 1420. During the Napoleonic wars, it was at different times in Russian, Fr., and Brit. hands. It was ceded to Austria by the Congress of Vienna

(q.v.), and to Yugoslavia in 1919. The prin. tn, also called K. (pop. 6900), has many anct buildings, including a fine 15th-cent cathedral. A traditional dance, performed annually on 29 June, symbolises the victory of the islanders over the Turks. Area 107 sq. m.; pop. 28,000.

**Korda, Sir Alexander** (1893-1956), Brit. film producer, of Hungarian origin, b. Turkeye, Hungary. Educ. at the Royal Univ., Budapest, he began life as a journalist. Entering the film industry in 1915 he produced and directed films in Budapest, Berlin, Paris, London, and Hollywood. Settling in England, he formed London Film Productions (1932), and in the next 8 years did much to make Brit. films the equal of the Hollywood product. From 1940 to 1943 he was in Hollywood; then returning to London he linked his company with Metro-Goldwyn-Mayer to form M.G.M.-Brit. Productions. In 1945 he resigned and concerned himself solely with the work of London Film Productions Ltd, of which he became chairman. Among many notable films made by him were *The Private Life of Henry VIII*, *The Scarlet Pimpernel*, *Sanders of the River*, *Rembrandt*, *The Four Feathers*, *The Lion has Wings*, and *Perfect Strangers*. In 1939 he married the film actress, Merle Oberon, the marriage being later dissolved. He was knighted in 1943.

**Kordofan**, prov. of the Sudan, between Darfur and the White Nile. More than half the surface of 146,930 sq. m. is flat, but in the SE. quarter some 50,000 sq. m. in extent, is the Jebel Nuba, a tumbled series of rocky massifs rising from the plain, honeycombed with caves and thickly populated by black aboriginal Nuba pagans living in autonomous groups under the control of their *mekes* and rain-makers and observing the cult of the spirits of the dead. In N. K., as well as in part of Kassala, are the great grazing areas beloved of the nomadic Arabs whose wealth consists of camels and sheep. During the rainy season, which lasts from June to Sept., the vegetation is luxuriant, but in the dry season the country is almost a desert. The development of the inland water supply by a well-boring programme was begun in 1924. The climate is fairly healthy. Rich gum forests are found, and ground-nuts, cotton (Ainer cotton has proved successful), tobacco, and millet are grown, and ostrich feathers, gum arabic, hides, and ivory are exported. The most important tribes are the Nuba, Shilluk, and Dinka. The most important of the elements of non-Arab origin in the Sudan are those to be found in K. (and Darfur). The cap. is El Obeid. Pop. about 600,000. In 1883 the Mahdi, in spite of the gallant defence by Mohammed Pasha Said, took El Obeid (q.v.) by storm. The Egyptian Gov. then sent a mob of untrained fellahin from Cairo under Hicks Pasha without regard to the consequences. In the succeeding Nov. the unfortunate Hicks and his army were ambushed and annihilated at Shekan to the S. of El Obeid, and large stores of arms fell into the hands

of the dervishes. Following the Brit. reoccupation in 1898 K. was added (1899) to the number of provs. of the Sudan. Before the coming of the Turks it had been an appanage of Darfur. In 1928 K. Prov. was amalgamated with the prov. of the Nuba Mts which had been a separate prov. since 1913. See Sir H. Mac-michael, *The Anglo-Egyptian Sudan*, 1934, and S. F. Nadel, *The Nuba: an Anthropological Study of the Hill Tribes in Kordofan*, 1947.

**Korea, or Corea (Chosen, Daihan)**, comprising, since 1948, the Democratic People's Rep. of K. in the N. and the Rep. of K. in the S., is a peninsula of E. Asia, lying between the Yellow Sea and the sea of Japan. It is separated from Manchuria and, for some 10 m., Siberia on the N. by the Yalu and Tumen R.s. and from Japan on the S. by the K. Strait, 102 m. wide. Its area is 85,156 sq. m., and it is about 600 m. long by 105 m. wide. A cordillera traverses the peninsula throughout its length; the mts slope precipitously and are very near the coast on the E. side, leaving only a narrow strip of land available for cultivation. On the W., however, the mts have a gentler slope, and as this portion is well watered, it is exceedingly fertile. The highest point in the range of mts, Mt Paiktu-Shan, reaches 8700 ft. The mts have been almost entirely denuded of the forests that should naturally cover them, but from 1905 the Japanese tried to put this right by afforestation. Many bays and harbours are found round the W. coast, and many is., the largest being Quelpart on the SW. On the S. and E. coast harbours are not so numerous. The tides are strong and the waters shallow off the W. coast, deeper off the E., and almost tideless. The chief rvs., the Yalu, the Tai-dong, and the Han, are all navigable for some distance. The fauna includes stags, hares, foxes, wolves, saibles, tigers, which are rapidly becoming extinct, and panthers. The climate is temperate and regular, and very healthy, and earthquakes, hurricanes, etc., are unknown.

The country is mainly agric., and the prin. crops are wheat, cotton, rice, millet, hemp, beans, and tobacco; fruit-growing is a developing industry. The cultivation of cotton on a large scale was begun by the Japanese in 1905, and continued with success. Silkworms are being increasingly cultivated. Ginseng, salt, and tobacco are produced. Korean cattle are a good and well-known breed; oxen are generally used in agric. work. The minerals of the country include coal, iron, copper, mica, graphite, and, most important, gold. The fishing industry was developed under Jap. influence. The manufs., mainly in the N., are still in a rather backward state; they include the making of hemp-cloth, an excellent kind of paper, and brass-ware. From the beginning of the 20th cent. the trade of K. increased enormously. The chief imports of the country are cotton, silk, and woollen goods, metals, and fire-arms; the chief exports are ginseng, beans, rice,

cotton, silk, cattle, hides, fish, grain, and gold and iron ores. The prin. railways are from Seoul to Fusan (a distance of 267 m.), from Fusan to Masad-po, from Seoul to the Yalu (300 m.), and from Chemulpo to Seoul (30 m.); there are sev. branch lines. The total mileage in 1940 was 2919 (gov. railways). There were also 1234 m. of private railways. The prin. open ports are Keijo (Seoul), Jinsen (Chemulpo), Fusan, Gensun, Chinnampo, Mokpo, Kunsan, Seishin, Heijo, Rashin,

and Koreans was abolished, but secondary and higher education was, for financial reasons, enjoyed chiefly by the Japanese. The knowledge of Chinese classics, and of Confucian doctrine, once held to be essential to an upper-class education, yielded under Jap. influence to a more practical system of instruction. Shinto being the Jap. national religion, shrines were established throughout K., and attendance at the shrines on stated occasions was obligatory on gov. officials and others.



*Camera Press*

#### A KOREAN LANDSCAPE

The patriarch is wearing traditional dress.

Yuki, Joshin, and Shingishu. Pyongyang is an inland port on the Tai-dong, and now the cap. of N. K. The privilege of owning mines in K. was extended to foreigners by the Mining Regulations of 1906.

Koreans belong to the Mongoloid family, but are distinct in features, dress, and customs from both the Chinese and Japanese. The former classical (Chinese) language is much used for literary purposes, though there is a Korean script called Eh-mun. The spoken tongue belongs to the Turanian group of languages, and is polysyllabic, having 11 vowels and 14 consonants. Since 1905 and during the Jap. occupation much was done to improve the educational system, but up to the 1930's some 90 per cent of the pop. were illiterate. In 1938 the system of separate schools for Japanese

The native annals date back to 57 BC, but until the 4th cent. have little historical value. Early Korean hist. is to be found in Chinese dynastic *Histories*. N. K. was the Lo-Lang Prefecture of the Chinese Han Empire from 108 BC to the 4th cent. AD, and modern Jap. archaeologists have shown that the Koreans used the Chinese language after that time. In AD 644, 647, and 661 the T'ang emperors again sent expeditions to K., and in 663 the Chinese force crushed a Jap. intervening force in central K., and made K. a prov. of China in 667. Under the Manchu gov. K. was a protectorate of China. As late as 1884 Chinese troops were in full control of K. Hiakai, which with Koral and Shinra then constituted K., was a centre of literary culture in the 4th cent., through which the Chinese classics and the art of



writing reached the other 2 kingdoms. Buddhism, a forceful civilising element, reached Haksu in AD 384, and from it the sutras and images of N. Buddhism were carried to Japan, as well as Chinese letters and ethics. Internecine wars were ended about 913 by Wang the Founder, who unified the peninsula under the name of Koral, made Song-do (Keijo) its cap., and endowed Buddhism as the state religion. K. aided Kublai Khan as a vassal of China in his futile invasion of Japan in the 13th cent. In 1392 was founded the dynasty which reigned until 1910, and the country was named Chosen. During the 14th cent. Confucianism was estab. as the state religion instead of Buddhism. From 1592 to 1597 the Japanese occupied K., but were driven out by the Chinese. Christian missionary effort was begun at the end of the 18th cent., but until relations had been opened with foreign countries the missionaries were severely persecuted. There are now many Christian converts, but ancestor worship is still predominant. Treaties were made with Japan in 1876, with the U.S.A. in 1882, with Great Britain in 1883, and with most European countries subsequently. In 1894 the Japanese invaded the country to put an end to the unsettled conditions that prevailed. China intervened, and thereby precipitated the Sino-Jap. war in which the Chinese forces were crushed, and by the peace of Shimonoseki, 1895, K. was declared independent, the is. of Formosa being ceded to, and an indemnity of £35,000,000 exacted by, Japan. The king in 1897 changed the name of K. to Daihan, and assumed the title of emperor. By the treaty of Portsmouth, K. was formally made a dependency of Japan (see RUSSO-JAPANESE WAR). By the treaty of 22 Aug. 1910 the Emperor of J. made a complete and permanent cession to the Emperor of Japan of all rights and sovereignty over the country, which was renamed Chosen; the Jap. resident-general was given the title of governor-general. Japan guaranteed to make no change in the existing tariff for 10 years. An imperial rescript gave out in 1919 that K. was an integral part of Japan, and the Koreans were to be regarded as on exactly the same footing as the Japanese.

At an allied conference at Cairo (Nov. 1943), Churchill, Roosevelt, and Chiang Kai-shek agreed (*inter alia*) that K. was in due course to regain her independence. Russia declared war against Japan on 8 Aug. 1945, and shortly afterwards occupied N. K. down to the 38th parallel, Amer. troops occupying the remainder of the country. On 27 Dec. 1945 agreement between the four powers (U.K., U.S.A., U.S.S.R., and China) was reached at the Council of Foreign Ministers in Moscow that a provisional gov. in K. should be formed under '4-power trusteeship of K. for a period up to 5 years.' The Amer. and Soviet authorities failed to reach agreement on the form of gov. to be estab. In 1947 the U.S.A. brought the matter before the General Assembly of U.N., and a U.N. commission was sent to K., but the

Soviet authorities refused it permission to enter their zone, and early in 1948 the commission had to admit failure. A general election was held in S. K. in May of that year, and in Aug. the Rep. of K., with its cap. at Seoul, was proclaimed with Dr Syngman Rhee (q.v.) as its first president. In Sept. 1948 a Democratic People's Rep., on the Communist pattern, with its cap. at Pyongyang, was set up in N. K. The border between N. and S., at the 38th parallel, was a source of constant trouble. In Dec. 1948 the U.N. appointed a second commission to pave the way for the reunification of K., but it was of no avail, and on 25 June 1950 open warfare broke out when N. K. invaded the S. (see KOREAN WAR). The Geneva Conference of 1954, which discussed K. at length, failed to find any solution towards unification, and it remains a divided country. Pop.: N. K. approx. 7,000,000 (cap. Pyongyang, 342,000); S. K. approx. 21,000,000 (cap. Seoul, 1,300,000). See H. Hueng-Wo Cynn, *The Rebirth of Korea*, 1920; Yung-hill Kang, *The Grass Roof* (in English), 1931; A. J. Grajdanzev, *Modern Korea*, 1944; E. K. Robertson Scott, *Old Korea, the Land of Evening Calm*, 1946; W. B. Honey, *Korean Pottery*, 1948; G. M. MacCune, *Korea To-day*, 1950; A. L. Grey, junior, 'The 38th Parallel,' *Foreign Affairs*, 1951; M. Beloff, *Soviet Policy in the Far East, 1944-1951*, 1953.

**Korea, Strait of**, channel between the SE. extremity of the Korean peninsula and the Jap. is. of Klusiu. It is 102 m. in width. Near the centre is the is. of Tshushima (q.v.).

**Korean War**, term given (though there was never any official declaration of 'war') to the fighting which began 25 June 1950, when N. Korean forces crossed the 38th parallel into S. Korea. Fighting ended 27 July 1953, when U.N. and Communist military representatives signed an armistice at Panmunjon.

**Causes and preceding events.** The W. allies and Russia had agreed at Potsdam (1945) that when Japan was defeated Korea should be given back the independence she had lost in 1910 (see KOREA). It had also been settled that Russia would accept the surrender of Jap. troops N. of the 38th parallel, America those S. of it. The W. never intended the 38th parallel to become a permanent 'iron curtain' frontier, dividing Korea into 2 distinct states, one Communist and the other anti-Communist; but this is in fact what happened. While the U.S.A. was assisting in peaceful reconstruction in S. Korea, and fostering the growth there of Korean political groups on W. democratic lines, Russia was imposing Communism in N. Korea, and supervising the growth of a large N. Korean army, clearly intended to be far more than a defensive force.

From 1945 to 1948 efforts by the U.N. to establish a unified Korea failed. The matter was referred to the General Assembly of the U.N., but Russia refused to discuss it, claiming that it was outside U.N. jurisdiction. In 1948 a Korean

general election was held, supervised by a U.N. commission, but in S. Korea only. Syngman Rhee (q.v.) became president, and in Dec. his gov. was recognised as the lawful Korean Gov. by all but the Soviet bloc. U.S. forces left the country, leaving behind a handful of military advisers. The Communists then announced that after 'elections' in the N. the Korean People's Rep. had been formed. This was promptly recognised by the Soviet bloc. Russian troops withdrew from N. Korea, but left behind a number of technicians. N. and S. Korean soldiers now faced each other across the 38th parallel. Border incidents became numerous, provoked sometimes by one side, sometimes the other. Accusations and counter-accusations multiplied. Neither half of Korea was self-supporting: each cited the other as the cause of this. Both were fundamentally backward and unstable, politically and economically, and both used the border agitation to distract popular attention from the many serious domestic problems. In addition, Soviet Russia was always ready to exploit a troubled situation in order to extend her own sphere of influence, and it is inconceivable to suppose that the N. Korean act of aggression on 25 June 1950 did not have prior Soviet approval.

As late as June 1950 a U.N. commission met N. Korean representatives on the 38th parallel to discuss Korean unification, the N. Koreans insisting that they desired unification by peaceful means only. Two weeks later they invaded S. Korea without any prior ultimatum or formal declaration of war, alleging provocation by S. Korea. The Security Council of the U.N. at once met and demanded the immediate withdrawal of the N. Koreans to the 38th parallel. Only the Soviet bloc dissented, and as Russia herself was boycotting the council at the time (see UNITED NATIONS) there was no veto. The council asked all members to help it enforce its demands (27 June). Truman (q.v.) announced that Amer. troops were being sent to Korea at once, and Atilie (q.v.) promised all available Brit. support.

*First phase—S. Korean retreat to the Pusan perimeter.* The initial attack was extremely violent and had the advantage of complete surprise. The N. Korean People's Army (NKPA) comprised the equivalent of 7 full-strength divs. and 4 independent brigades. Their artillery units were well organised, and they were supported by Russian-built tanks and jet aircraft; 60,000 N. Koreans poured over the 38th parallel. Against them the Rep. of Korea Army (ROK) could offer 8 divs. of mostly only brigade strength, and they had virtually no artillery, armour, or aircraft. ROK troops fell back rapidly, inflicting heavy casualties as they did so, though their own losses were also substantial. But it was the civilian pop. which was to suffer most terribly in this war. S. Korea W. of Seoul was soon overrun; Seoul itself fell to NKPA on 30 June, the day that the first U.S. troops landed in Korea.

On 7 July MacArthur (q.v.) was named as Supreme Commander of the U.N. Korean forces. Soon Amer. troops and supplies were pouring into S. Korea. NKPA's initial air supremacy vanished, never to be regained throughout the war. A naval blockade of the Korean coast was enforced. On 29 Aug. the first Brit. troops landed in Korea.

Still the U.N. forces were pushed back until they were confined within what was little more than an enlarged bridgehead, based on Pusan, which became known as the 'Pusan perimeter.' It was essential that NKPA should be halted now, unless the U.N. forces were to be forced right off the peninsula. On 1 Sept. NKPA launched a violent offensive against the perimeter. The fighting was bitter and costly, but MacArthur's line held, and by mid Sept. the offensive was a spent force. NKPA was beginning to feel the strain of its swift advance and stretched communications.

*Second phase—Break-out from Pusan—U.N. advance to the Yalu.* This began with the landing of the 10th U.S. Corps at Inchon, on the W. coast of Korea, well inside enemy ter., on 15 Sept. The aim was to cut the N. Korean lines of communication and recapture Seoul, 20 m. away. This would mean that the N. Koreans besieging Pusan would be virtually cut off. The landing was a great success. The enemy was completely surprised, though evidence found later showed that had the attack been delayed only 4 weeks the N. Koreans would probably have been ready for it and the result might well have been very different. Seoul was actually recaptured by the 1st U.S. Marine Div. on 28 Sept., after heavy fighting. The day after the Inchon landings, 16 Sept., U.N. forces in the perimeter had launched a 'break-out' offensive, which was so successful that by 1 Oct. the N. Koreans were falling back over the 38th parallel. Their retreat had become a rout. Six NKPA divs. had been trapped in S. Korea, and the main strength of their army was shattered. Their casualties and supply losses were enormous. The mass surrenders indicated a collapse of morale. It seemed doubtful if they could continue the struggle alone.

MacArthur was anxious to press the war into N. Korean ter., and on 7 Oct. the General Assembly of U.N. authorised the continuation of the war into N. Korea if necessary. Two days later U.N. troops crossed the 38th parallel. Pyongyang, cap. of N. Korea, fell on 19 Oct. It was in ruins, having previously been heavily bombed by U.N. planes. U.N. troops advanced to the Yalu, and MacArthur called on the N. Koreans to surrender and end the war.

U.N. troops by now included contingents from Britain, Australia, Canada, Turkey, and the Philippines. By the end of the war the Eighth U.S. Army (q.v.) had the support of units from 21 different countries.

*Third phase—Chinese intervention.* In Oct., even before the U.N. forces had

crossed the 38th parallel, Chou En-lai (q.v.) had stated that the Chinese would not stand idle if N. Korea were invaded. About the same time vague reports began to reach the W. of large Chinese troop movements near the Chinese-N. Korean border. But MacArthur seems to have believed that China would not intervene unless the U.N. forces actually crossed the Yalu; he therefore risked dispersing his troops so that his army was strung out along a very long battle-line, with little defensive depth, extremely vulnerable to

Wonsan. Though surrounded and outnumbered many times (about 6 Chinese divs. were used in this sector alone) the 10th Corps eventually fought its way to the sea at Hungnam, whence it was evacuated to Pusan (11-24 Dec.). Possibly because they were hampered by administrative problems of communication and supply, the Chinese did not follow up their initial attack immediately, and the U.N. forces were able to disengage and retreat to the 38th parallel. But their supply losses were very heavy.



*Central Press Photos Ltd*

#### REFUGEES FROM BATTLE IN THE KOREAN WAR

any concentrated attack. U.N. air superiority began to be challenged by the appearance of sev. Russian-built MIG 15 jets, presumably with Chinese pilots, which attacked the U.N. bases from the safety of bases in 'neutral' Manchuria.

At first the Chinese confined themselves to limited patrolling. But on 26-27 Nov. at least 14 Chinese divs. launched a furious attack against the U.N. line, the main force being directed against the Tokchon sector. The U.N. line was pierced here, and the whole U.N. army was soon threatened. U.N. troops were heavily outnumbered, and the bad weather which had set in caused them great hardship and prevented U.N. aircraft from giving their usual support. The Chinese and N. Koreans recaptured Pyongyang on 4 Dec. Another spearhead of the Chinese attack had thrust at the 10th U.S. Corps, on the E. coast near

Meanwhile the U.N. were making new efforts to end the fighting. Chinese Communist delegates were invited to New York to explain their intervention in the war, but on arrival they insisted instead that the Security Council should discuss alleged Amer. 'aggression in Formosa,' and though some talks on Korea did eventually take place they proved quite fruitless.

In Dec. Ridgway (q.v.) became commander of the Eighth Army, succeeding Walker, who had been killed in a road accident.

A new Chinese offensive all along the new U.N. line began on 1 Jan. 1951. Three days later Seoul was once again in Communist hands. By mid Jan., when the offensive began to slow down, the Chinese were across the Han. R. and 70 m. into S. Korea.

*Fourth phase—Dismissal of MacArthur—Battle of the Imjin—Battle-line stabilised*

along 38th parallel. On 21 Jan. U.N. forces launched a counter-offensive. The Chinese were thrown back across the Han and Seoul was freed on 14 Mar. By 8 April all S. Korea E. of the Imjin R. was in U.N. hands. On 11 April MacArthur was relieved of all his commands by Truman, and succeeded as Supreme Commander by Ridgway. Van Fleet became commander of the Eighth Army. This was the climax to a series of events in which MacArthur had publicly defied the President, and Truman had little alternative but to dismiss him (see further MACARTHUR, DOUGLAS, and UNITED STATES OF AMERICA, *History*). But to MacArthur must fall the major share of the military credit for saving S. Korea from Communism.

The Eighth Army again started to form a defensive line along the 38th parallel, but before this could be completed the Chinese launched another offensive (23 April). This is memorable in Brit. military hist. for the 3-day stand on the Imjin R. by the 1st Batt. of the Glos. Regiment (q.v.), completely surrounded and ceaselessly attacked by overwhelming numbers of Chinese. The battalion held out until its fighting strength had fallen to scarcely 100 men: and its stand had prevented a rapid Chinese break-through. Though Seoul was temporarily threatened the offensive was slackening by early May, and a second Chinese attack on 16 May failed to break the U.N. line. On 21 May the U.N. army counter-attacked, and drove the Chinese back behind the 38th parallel.

By now Communist casualties numbered over 250,000. Their material losses had been enormous, and N. Korea, on whose industrial development large sums of Soviet money had been spent, 1945-50, was devastated. On 23 June the Soviet delegate to the U.N. indicated in a broadcast that the Communists would consider a truce, and talks opened at Kaesong on 10 July 1951.

From then until the final agreement, 2 years later, fighting continued sporadically, occasionally flaring up violently in limited areas, but the battle-line did not change substantially. In May 1952 Clark (q.v.) took over Supreme U.N. Command from Ridgway. In June 1953, after Rhee's declaration that S. Korea would never agree to the proposed armistice terms, the Chinese launched an offensive against the S. Korean sectors of the U.N. line, with the obvious intention of forcing the S. Koreans to agree to the terms. There were heavy casualties on both sides and fighting here did not end until the armistice was actually signed.

The truce talks—Cease-fire signed. Though these began on 10 July 1951, they were twice broken off in Aug., first by the U.N. command and then by the Communists, in each case on the grounds that the neutrality of the talks area was being infringed by the other side. In Oct. the talks were resumed at Panmunjon, and agreement was reached on a provisional demarcation line. Prisoner of war lists were exchanged in Dec.

The talks dragged on inconclusively through 1952, the main stumbling-block being the question of the repatriation of prisoners. The Communists insisted that all prisoners should be repatriated, although large numbers of N. Koreans and Chinese did not wish to return home. The U.N. were utterly opposed to forcible repatriation. A delicate situation was exacerbated by mass-revolt among pro-Communist N. Korean and Chinese prisoners in S. Korea. In Oct. 1952 the talks were adjourned indefinitely. Korea was debated in the General Assembly in Dec., but the Communists turned down an Indian compromise plan for a cease-fire. Eisenhower (q.v.) visited Korea in fulfilment of his election promises.

In April 1953 the Communists agreed to the exchange of sick and wounded prisoners, and later that month truce talks reopened. On 8 June agreement was reached on the repatriation issue. Prisoners not willing to be repatriated were to be handed over to a neutral commission which would try for 90 days to settle their future. Failing this, a political conference would try for a further 30 days. If this failed too, the prisoners would be released forthwith as civilians. Then Rhee announced unilaterally that S. Korea would not accept the armistice terms, and on 18 June about 25,000 N. Korean anti-Communist prisoners escaped from their camps, aided by their S. Korean guards, after Rhee had ordered their release.

Chinese reaction was a heavy military offensive (see above). On 20 June truce talks were again virtually suspended. On 25 June General Clark and Mr Robertson, Eisenhower's special envoy, began private talks with Rhee on the armistice question, and on 12 July it was announced that an understanding had been reached. The cease-fire was signed 27 July.

The terms laid down that a political conference within 90 days of the signing should settle troop withdrawals and permanent peace terms. Preliminary talks began on 26 Oct., and ended abruptly on 12 Dec., when the U.N. envoy walked out after Communist charges that the U.S.A. had been a party to Rhee's order to free anti-Communist prisoners in June.

The Geneva Conference discussed Korea April-June 1954, but failed to agree on measures for reunifying the country. Korea thus remains (1958) divided into a Communist and a non-Communist state, the frontier between them being roughly along the 38th parallel, very much as it was at the start of the fighting.

Amer. casualties in the fighting totalled approximately 142,000, including 33,600 killed. Brit. casualties of 4500 included nearly 1000 killed and missing. S. Korean casualties are not exactly known, but must have been relatively high. Chinese and N. Korean casualties have never been disclosed, but were certainly over 250,000 and probably much higher. Prisoner exchange was completed by 6 Sept. 1953. The U.N. handed over 75,000 prisoners. Over 22,000 refused

repatriation. The Communists handed over 12,500 prisoners. About 400 U.N. troops, chiefly S. Koreans, refused repatriation. In Jan. 1954 agreement was reached on the final disposal of prisoners refusing repatriation. The Communists agreed to keep the 400 pro-Communist U.N. prisoners; the U.N. Command handed over 7500 anti-Communist N. Koreans to S. Korea and the 15,000 Chinese anti-Communist prisoners were sent to Formosa.

**Conclusions.** The K. W. was remarkable in that it was fought by an international organisation, the U.N., to curb an act of aggression which threatened world peace. But the U.S.A. was undoubtedly the motive force, supplying the bulk of the effective troops and most of the supplies. The U.N. cause succeeded in that the aggression was indeed curbed, although early hopes that a united Korea would emerge from the fighting proved fruitless. But in failing to absorb S. Korea into the Communist orbit, Communism suffered its first set-back in the steady territorial expansion it had been enjoying since 1945. The war marked the emergence of Red China as a positive aggressive force in the Far E., with aims beyond her own borders.

The Chinese proved tough fighters; but the U.N. forces were their superiors in technical and engineering skill, qualities which counted for much in the difficult Korean conditions, and which told especially when lines of communication were stretched. Though the N. Koreans began the war with Soviet-supplied mechanised equipment which gave them immediate military superiority over the S. Koreans, once the U.S.A. began sending men and supplies to S. Korea their superiority vanished. The U.N.'s air superiority was maintained throughout the fighting, not even the appearance of the MIG 15s threatening it for very long. It was a war of 'conventional' weapons: its most original military feature was perhaps the use made by the U.N. forces of helicopters which were very useful in the mountainous Korean terrain.

The war brought great material devastation and much suffering to the civilian pop. of N. and S. Korea. Civilian casualties, including those who d. as the result of malnutrition or disease indirectly caused by the fighting, outnumbered military ones. Another dark feature was the calculated brutality shown to many U.N. prisoners by their Chinese and N. Korean captors.

See also CHINA, *History*; KOREA; MACARTHUR, DOUGLAS; RHEE, SYNGMAN; UNITED NATIONS; UNITED STATES OF AMERICA, *History*.

See R. C. W. Thomas, *The War in Korea*, 1954; N. Bartlett, *With the Australians in Korea*, 1954; M. W. Clark, *From the Danube to the Yalu*, 1954; S. J. Davies, *In Spite of Dungeons* (an account by a Brit. army chaplain of his experiences as a prisoner of war in N. Korea), 1955; Harry S. Truman, *Memoirs* (vol. ii), 1956; C. A. Willoughby and J.

Chamberlain, *MacArthur, 1941-51: Victory in the Pacific*, 1956.

**Koregaon (Corygaum)**, tn in Bombay state, India, 16 m. NE. of Poona. Here 800 of the E. India Co.'s sepoys under Capt. Staunton kept 25,000 Mahrattas, under the command of the peshwa himself, in check on 1 Jan. 1818.

**Koriaks**, see KORYAKS.

**Korin, Ogata** (c. 1657-1716), one of the most famous Jap. artist-craftsmen, b. Koto, son of a wealthy merchant. He was trained in the classic Jap. Kano school but broke away and developed a bold, simplified, and effective style of his own. This he employed in both paintings and lacquer-work. See S. Tajima, *Masterpieces selected from the Korin School*, 1903.

**Körner, Karl Theodor** (1791-1813), Ger. poet, b. Dresden. Owing to delicate health he was not sent to school, but was educ. privately. He studied at Leipzig and in 1811 went to Vienna, where he began writing poetry, and where he wrote 2 plays, *Die Braut* and *Der grüne Domino*. In 1813 he became a member of Lützow's famous volunteer corps, formed to resist the French, but was severely wounded at Kitzend and, later, killed near Schwerin at the age of 22. His fame rests on his war songs, entitled *Leyer und Schwert*, 1814, pub. after his death, the two most popular being 'Schwert-Lied' (Sword Song) and 'Männer und Buben' (Men and Cowards). See O. F. Scheuer, *Theodor Körner als Student*, 1924; also lives by his father, C. G. Körner, (Eng. trans.), 1845, and K. Berger, 1912.

**Korneuburg**, Austrian tn in the prov. of Lower Austria, on the Danube, 9 m. NW. of Vienna. It is a steamboat station, has a trade in salt and corn, and manufs. textiles. Pop. 16,500.

**Korngold, Erich Wolfgang** (1897-1957), Austrian composer, b. Brno, son of Julius K., music critic. He made a sensation at the age of 13 with the ballet *Der Schneemann*, though the music was orchestrated by Zemlinsky from a piano Suite by K. He also wrote 4 operas, incidental music for *Much Ado about Nothing*, a *Sinfonietta*, and 2 overtures, a piano Concerto, some chamber and piano music, and a few songs. He emigrated to the U.S.A., where he devoted himself chiefly to film music.

**Kornilov, Lavr Georgiyevich** (1870-1918), Russian general of half Kirghiz origin. He commanded a brigade in 1915, and was taken prisoner by the Germans but escaped. In 1917 he was commander of St Petersburg Military Dist. and arrested Nicholas II and his family. In Aug. 1917 he was commander-in-chief of all Russian forces; appreciating the danger of a Bolshevik coup, and considering the Provisional Gov. (q.v.) too weak to deal with it, he plotted—together with sev. generals and industrialists—to overthrow the gov. The attempt failed, and the practical result of the affair was further to weaken the gov. and to strengthen the Bolsheviks, who appeared as allies of the democratic elements in defeating the ghost of a right-wing dictatorship. K.

was arrested, but escaped in Dec. and, together with Gen. Alekseyev (q.v.), formed the first anti-Bolshevik volunteer units; he was killed in one of the first battles of the civil war. See KERENSKIY and CIVIL WAR, RUSSIAN.

**Korolenko, Vladimir Galaktionovich** (1853-1921), Russian writer of Ukrainian-Polish origin, a leader of the Liberal Populists (see POPULISM) and co-editor of their main jour., *The Russian Wealth*, spent 6 years in banishment in Siberia. His novels (e.g. *The Blind Musician*, 1886) and stories, mostly devoted to 'the wronged and the humiliated,' are permeated with humanitarianism and optimism.

**Koroni**, see CORON.

**Körös, Alexander Csoma de**, see CSOMA.

**Körös** (Rumanian Crişul), riv. of Rumania and Hungary. It rises in the Bihor Mts (q.v.) in 3 head streams (the Rapid, White, and Black K.), which unite in the E. Alföld (q.v.) and join the Tisza (q.v.) at Csongrad (q.v.). Length about 350 m.

**Korosten'**, tn in Zhitomir Oblast of the Ukraine, 93 m. NW. of Kiev. It has been known since the 10th cent., and was the cap. of the Drevlyane tribe. Pop. (1956) 34,000, before the war half Jewish.

**Korsakov** (1905-45, Otomari), tn in S. Sakhalin, 25 m. S. of Yuzhno-Sakhalinsk, most important seaport of the is. There is some industry. Founded by Russians, 1876, as a fort. Japanese, 1905-45. Pop. (1934) 46,000 (1897, 300).

**Korsør**, seaport on the W. coast of Zealand, Denmark, 61 m. WSW. of Copenhagen. The harbour is formed by a bay of the Baltic. A train ferry to the is. of Fyn here crosses the Great Belt. Pop. 12,960.

**Kortrijk**, see COURTRAI.

**Korumburra**, tn of Victoria, Australia, situated in Mornington co., 68 m. SE. of Melbourne, a dairy and coal-mining centre. Pop. 3000.

**Korvey**, see CORVEY.

**Koryaks**, Paleo-Asiatic speaking people living in the N. of the Kamchatka Peninsula and the adjacent part of the mainland in the Russian Far East. They have been known since the 17th cent., and numbered (1926) 7000. They are mostly fishers and reindeer breeders, now collectivised. The Koryak Nat. Dist., formed in 1930, belongs to the Kamchatka oblast; it has oil and coal deposits. There are fishing and coal-mining for local use. The administrative centre is the vil. of Palana. Area 132,000 sq. m.; pop. (1956) 30,000. See W. Kolarz, *The Peoples of the Soviet Far East*, 1954.

**Korzeniowski, Teodor Józef Konrad**, see KONRAD, JOSEPH.

**Kos**, is. in the Aegean Sea. See COS.

**Kosciusko**, highest mt summit of Australia, with a height of 7338 ft. It is situated in the SE. of New S. Wales, and forms a part of the Australian Alps. In 1897 a meteorological station was estab. here.

**Kościuszko**, Tadeusz Andrzej Bonawentura (1746-1817), Polish soldier and patriot, b. Siechnowice in Lithuania. A

love affair drove him to the U.S.A. (1777), where he fought on the side of the colonists. Returning to Poland in 1786 he distinguished himself against the Russian invaders in 1792. When the revolution of 1794 broke out he put himself at the head of the national movement in Cracow, and was appointed dictator and commander-in-chief. At first victorious, he was hemmed in by Russians and Prussians at Warsaw, and, forced to take the field, he was defeated and taken prisoner at Maciejowice. Released 2 years later he made some further effort for the cause of



KOŚCIUSZKO

Engraving after a print (1829) by A. Pleszozynski.

Polish independence without much success, and then retired to follow agric. pursuits in France and Switzerland. He d. in Switzerland, and was buried in Cracow. See M. M. Gardner, *Kosciusko*, 1942.

**Kosel**, see KOZLE.

**Kösen**, Ger. spa in the dist. of Halle, on the Saxonian Saale (q.v.), 28 m. SSW. of Halle (q.v.). Pop. 6000.

**Kosher**, or **Kasher**, Heb. word meaning fit, and therefore opposed to *pasul* (unfit). It is especially applied by Jews to meat which has been slaughtered according to Mosiac law as opposed to *treifah* (torn).

**Košice**: 1. Region (*kraj*) in SE. Czechoslovakia, bordering on Hungary, part of the former prov. of Slovakia (q.v.). It lies mainly in the Carpathians (q.v.). Area 2870 sq. m.; pop. 462,000.

2. (Ger. *Kaschau*; Magyar *Kassa*) Czechoslovak tn, cap. of the region of K., on the Hernád. It was formerly a royal free city of Hungary, and played a part in the Hungarian revolution of 1848-9 (see HUNGARY, History). K. is the seat of a Rom. Catholic bishop, and has a 13th-cent. cathedral. It has magnesite, textile, chemical, engineering, saw-milling,

and antimony industries, and is also a spul. Pop. 60,700.

**Köslin, see KOSZALIN 2.**

**Kosovo-Metohija** (or **Kosovo-Metohija**), autonomous prov. of Serbia, Yugoslavia, on the Albanian border, formed of the dists. of Kosovo and Metohija. It was the scene of many battles during the Balkan War (q.v.), and of the last stand of the Serbs in 1915 (see **SERBIA, History**). The prin. tns are Priština, Prizren, and Peć (qq.v.). Pop. 809,234. See also **BLACKBIRDS, FIELD OF THE**.

**Kosovo-Metohija, see KOSOVO-METOHIA.**

**Kossuth, Ferencz Lajos (Louis) Akos** (1802-94), Hungarian patriot, b. of good family at Monok. He studied law at Budapest, and practised for a time, but gave most of his life to the cause of Hungarian nationalism. After serving a sentence of 4 years for publishing reports of the debates of the National Assembly, he led for 3 years (1841-4) the *Pesti Hirlap*, the organ of the National party, and came to be recognised as one of the leaders of the National movement. He was minister of finance in the Hungarian ministry of 1848, and shortly afterwards, when a dispute arose with Austria over the revolt of the Croats, he declared the independence of Hungary, and practically took the gov. into his own hands. He ruled dictatorially, and was at least partially responsible for the tragic end of the revolution, for he refused to take advice from the military experts around him; but his personal magnetism, sincere patriotism, and popular appeal are unquestionable. His triumph was short-lived, and in 1849, after Görgei's surrender of Világos, he was forced to flee to Turkey where he was made a prisoner, but afterwards released. He then visited England and the U.S.A., living in England for sev. years in close connection with Mazzini (q.v.). He made further attempts against Austrian rule, but his activities in that direction ceased after the Austro-Hungarian reconciliation of 1867. He d. at Turin. See *Memories of my Exile* (autobiography), 1880, 1894, and O. Zanck, *Kossuth* (Eng. trans.), 1937.

**Kossyra, see PANTELLERIA.**

**Kostroma:** 1. Oblast in central Russia, NE. of Moscow, situated N. of the Volga, and largely forested. There are textile, lumbering, and wood-processing industries, varied old crafts, flax-growing, and dairy farming (K. breed). Area 22,400 sq. m.; pop. (1956) 897,000, Russian.

2. Cap., economic and cultural centre of the above, on the Volga. There are linen-milling, engineering, and food industries, and the tn contains many interesting 16th-19th-cent. churches and other buildings. Founded in 1152, in the 13th-14th cents. it was the cap. of a principality. In 1364 it was conquered by the Muscovites, and from then onwards was an important commercial and manufacturing centre. A univ. was estab. in 1919, but later abolished. Pop. (1956) 156,000 (c. 1914, 67,000; 1920, 50,000; 1939, 121,000).

**Kostrzyn, see KÜSTRIN.**

**Koszalin:** 1. Prov. (*województwo*) of NW. Poland, with a coastline on the Baltic Sea. Its ter. was, until 1945, part of Ger. Pomerania (q.v.); the Ger. inhab. were expelled after the end of the Second World War. K., in general, consists of low, rolling uplands, with many small lakes; the chief riv. is the Prosnica. Livestock is raised, and cereals and potatoes are grown. Fishing is important on the coast, and there are wood and metal industries. Area 6780 sq. m.; pop. 600,000.

2. (Ger. **Köslin**) Tn of Poland, cap. of K. prov., near the Baltic coast, 235 m. NW. by W. of Warsaw (q.v.). It was badly damaged in the Thirty Years War. In 1648 it went to Brandenburg. During the Second World War it suffered severely; it was taken by the Russians on 4 Mar. 1945. There are textile, engineering, and foodstuff industries. Pop. 20,000.

**Kőszeg** (Ger. **Güns**), tn of Hungary, in Vas co., 11 m. NNW. of Szombathely (q.v.). It is near the Austrian border, has many beautiful old houses, and has a 13th-cent. citadel (rebuilt 18th cent.), the bells of which are still rung daily to commemorate a repulse of the Turks in 1532 (see **TURKEY, History**). It has textile, flour, and distilling industries, and manufs. of soap, candles, and bricks. Pop. 10,500.

**Kota Bharu**, seaport and cap. of Kelantan, Malaya. In the Second World War the Japanese began their attack on Malaya and Singapore by a landing near K. B. Pop. 33,000.

**Kota-Kota**, trade port in Nyasaland, on the W. shore of Lake Nyasa. It has a good harbour, and used to be the chief starting-place of Arab caravans to the interior. The natives are largely Mohamadan. Rice and cassava grow well. Lake fishing is carried on from K.-K.

**Kotaiba, see QUTAIBA.**

**Kotanu, see COTANU.**

**Kotelnoi, see NEW SIBERIA ISLANDS.**

**Köthen, or Cöthen**, Ger. tn in the dist. of Halle, 18 m. N. of Halle (q.v.). It was formerly the cap. of the duchy of Anhalt-K., and has a palace, and sugar and textile industries. Pop. 40,000.

**Kotka**, seaport in the co. of Kymi, Finland, on the Gulf of Finland. It is a centre of the pulp and timber trade, and the chief port for the exports and imports of E. Finland. Pop. 29,000.

**Kotlas**, tn in the Archangel Oblast of N. Russia at the confluence of the N. Dvina and Vychegda. It has shipbuilding and wood-processing industries, and is a major transportation centre (riv. port, 3 railway lincs). It is the head point of the forced labour camps along the railway K.-Vorkuta. It became a tn in 1917. Pop. (1936) 21,000, now much bigger.

**Kötum, Jóhannes úr, see JÓNÁSSON, JÓHANNES.**

**Kotokou Tenno** (reigned AD 645-654), Emperor of Japan, added lustre to his name by the many reforms he accomplished in the prov. administration. Also he appointed 3 ministers to advise and control a council of 8.

**Kotor** (It. Cattaro), port in Montenegro, Yugoslavia, at the head of the 20-m.-long, mountain-girt Gulf of K. It has been a naval station since Rom. times. Once cap. of a small independent state, it joined the Venetian rep. in 1420, and was ceded to Austria in 1814 by the Congress of Vienna (q.v.). In 1919 it was given to Yugoslavia. It is a most picturesque tn, built at the foot of a cliff, and was almost destroyed by earthquakes in 1563 and 1667. There is a splendid cathedral, and there are sev. fine churches and palaces. It is the seat of Rom. Catholic and Orthodox bishops. Pop. 7500. *See also* HERCEGNOVI.

**Kotow**, *see* KOWTOW.

**Kottayam**, tn in Travancore-Cochin state, India, 32 m. SE. of Cochin, noted as the main Christian centre in Travancore and the see of the Anglican bishopric of Travancore and Cochin.

**Kottbus** (or Cottbus): 1. Dist. (*Besirk*) of the Ger. Democratic Rep. (E. Germany), bordered on the E. by the Polish prov. of Zielona Góra; on the S. by Dresden; on the E. by Leipzig; and on the N. by Potsdam and Frankfurt-an-der-Oder (qq.v.). It was formerly part of Brandenburg (q.v.). Area 3190 sq. m.; pop. 788,000.

2. Ger. city, cap. of the dist. of K. and chief tn of Lower Lusatia, on the Spree (q.v.), 70 m. SE. of Berlin. It has medieval churches and ruined tn walls. There is an airport, an agric. market, and there are textile and foodstuff manufs. Pop. 50,000.

**Kotzebue**, August Friedrich Ferdinand von (1761-1819), Ger. dramatist, b. Weimar, held various public offices in the Russian service where he gained great fame. In 1795 he retired and devoted himself to literature. He was a prolific writer of plays, satires, tales, and historical works. His best-known dramas are *Menschenhass und Reue*, 1790, *Die Kreuzfahrer*, 1803, *Die Hussiten vor Naumburg*, 1803, and *Der arme Poet*, 1811. His plays are characterised by their sprightly dialogues and skilful delineation of character. K. was a great controversialist, and attacked Goethe as well as quarrelling bitterly with the Rom. school. In particular he ridiculed the *Burschenschaft* movement, and was on that account assassinated by a Jena student named Sand at Mannheim. His complete works appeared in 44 vols. (1827-29). *See* C. Rabany, *Kotzebue, sa vie et son temps*, 1893; L. F. Thompson, *August Kotzebue: a Survey of his Progress in France and England*, Paris, 1929; A. W. Holzmann, *Family Relationship in the Dramas of Kotzebue*, 1936.

**Kotzebue**, Otto von (1787-1846), Ger. explorer, son of August Friedrich K., b. Reval. He accompanied Krusenstern round the world (1803-6) and made 2 prolonged voyages to the Pacific, discovering in the first (1815-17) the Suvorov and Krusenstern is. and K. Sound, afterwards visiting in the second (1823-6) the is. of the Sandwich, Philippine, and Samoan groups. He wrote *Der Spanier in Peru* (1795; Eng. adaptation

by Sheridan. Pizarro, 1799), *A Voyage of Discovery into the South Sea* (trans., 1821), and *A New Voyage round the World* (trans., 1830).

**Kotzebue**, Paul, Count (1801-84), Russian general, brother of Otto K. After he had seen service in the Caucasus and Poland, he was given the command of the Caucasian Army. During the Crimean War (1853) he was attached to Prince Gorchakov, and from 1874 to 1880 acted as governor-general of Poland.

**Kouklia**, *see* PAPHOS.

**Koumiss**, or **Kumis**, beverage made from mare's milk fermented and often served up with cooked grain. It was a common refreshment of the Arabs of Africa and some of the tribes of Asia, particularly the Tartars.

**Kouropatkin**, *see* KUROPATKIN.

**Kouyoumdjian**, Dikran, *see* ARLEN. MICHAEL.

**Kovalevsky**, Alexander (1840-1901). Russian embryologist, b. near Vitebsk; became a prof. at Odessa and St Petersburg. His research work includes the embryology of invertebrates, the life hist. of a simple ascidian (1866 and 1871), and the development of the *Amphioxus* (1867 and 1877), *Balanoglossus* (1876), the worm *Sagitta*, and the brachiopods. He prepared the way for Haeckel's Gastraea theory.

**Kovalevsky**, Sophie Vasilyevna, better known as **Sonja Kovalevsky** (1850-91). Russian mathematician, b. Moscow, married in 1868 and went to Germany with her husband. In 1884 she was appointed lecturer in Stockholm, and in 1889 prof. Her greatest distinction was the winning of the Prix Bordin from the Academy of Paris (1888) for her memoir on the rotation of a solid body about a fixed axis. *See* studies by Anna Leffler, 1892 and 1894.

**Koven**, Reginald de, *see* DE KOVEN.

**Kovno**, *see* KAUNAS.

**Kovrov**, tn in the Vladimir oblast of central Russia. It is an important industrial and transportation centre: engineering (excavators) and food industries, 4 railway lines. It was a medieval vil. of Suzdal' principality, has been a tn since 1778, and its commercial and industrial development dates from the 19th cent. Pop. (1956) 90,000.

**Koweit**, **Kuweit**, or **Kuwait**, independent state in Arabia, situated between Iraq and El Hasa on the SW. shore of the Persian Gulf. It is the best harbour on the Persian Gulf and is the port for N. Arabia, importing guns, rice, coffee, grain, piece goods, etc., and exporting horses, pearls, dates, wool, dried fish, and ghee. It was famous for the building of sailing ships, some of which went as far as Bombay and Zanzibar. In 1914 Britain recognised the sheikh as an independent ruler under Brit. protection. Everything has been changed by the discovery of oil, of which nearly 54 million tons were produced in 1955. The sheikh uses much of his wealth to make life easier for the people; a port has been equipped to accommodate big tankers, and electric



light, schools, and hospitals have been introduced. Formerly drinking water was brought by sea from Basra (a pipeline would have left K. at the mercy of Iraq) but now condensers have been or are being erected. Oil is the only wealth as most of the area is barren. Area 5800 sq. m.; pop. 200,000, most of whom dwell in or near the cap. See H. R. P. Dickson, *The Arab of the Desert*, 1948.

**Kowhai** (*Sophora tetralopra*), shrub of New Zealand, which grows from 15 to 40 ft high, and has long, rich yellow, pendulous racemes shaped like a curved parrot beak. It is regarded as the national flower of New Zealand.

**Kowloon**, or **Kaulun**, peninsula of China, situated opposite the Is. and forming part of the Brit. colony of Hong Kong. It was ceded to the British in Jan. 1861, having been acquired by the Peking Convention of 1860. The tn of K. covers the entire peninsula and stretches without interruption northward into the New Ters. A railway runs from here to Canton, and the tn contains the colony's main industrial area, one of the 2 prin. commercial dockyards, the largest wharves for ocean-going ships, and a large residential suburb. See HONG KONG.

**Kowtow** (Chinese k'o, knock; *f'ou*, head), former Chinese method of obeisance before the emperors. On approaching the imperial throne a subject knelt and bowed until his forehead touched the ground. The word has come to be used of obsequious behaviour in general.

**Kozhikode**, or **Calicut**, tn and seaport of Kerala state, India, formerly chief tn of Malabar Dist., situated on the W. coast 130 m. from Mysore. K. was visited by Vasco da Gama in 1498, and a Portuguese factory estab. in 1513. An Eng. factory was estab. in 1616. Tea, coffee, coconuts, and spices are exported. There is a textile industry and K. has given its name to calico.

**Koźle** (Ger. *Cosel*), tn of Poland, in Opole prov., on the Oder (q.v.), near the W. end of the Gliwice canal, 25 m. SSE. of Opole (q.v.). Until 1945 it was in Upper Silesia (q.v.). There are sugar, flour, and metal industries. Pop. 10,000.

**Kozlov**, see MICHURINSK.

**Kra**, Isthmus of, situated about lat. 10° 20' N., connects the Malay Peninsula with the rest of Indo-China. A gap occurs here between the main mt range and the mts of the peninsula, and it has been proposed that this shall be the site of a new ship canal; this would shorten the route from Calcutta by nearly 700 m., and that from Burma to Bangkok by over 1000 m. The Isthmus was crossed by Jap. invading forces in Dec. 1941, the entire Malayan Peninsula being conquered in 2 months.

**Kraepelin**, Emil (1856-1926), Ger. psychiatrist, b. Neu-Strelitz, and educ. at Leipzig and Würzburg, graduating in 1878. In 1886 he was appointed prof. of psychiatry at Dorpat, in 1890 at Heidelberg, and in 1904 at Munich, where he became director of the psychiatric clinic. In 1917 he founded the German institute of psychiatric research. K. was one of the

greatest of all psychiatrists and a pioneer of experimental psychiatry. He evolved a new classification of insanity and introduced the concepts 'dementia praecox' and 'manic-depressive insanity' as distinct disease entities. His works include *Compendium der Psychiatrie*, 1883 (9th ed., 1927), and *Einführung in der psychiatrische Klinik*, 1902.

**Kragujevac**, tn in Serbia, Yugoslavia, on the Lopenica. It was a centre of the Serbian struggle against the Turks, and became the seat of the Obrenović (q.v.) princes. It has a cathedral, a palace, and is the prin. industrial tn and railway junction in Serbia. K. has munition and metallurgical industries. Pop. 40,600.

**Krailsheim**, see CRAILSHEIM.

**Krain**, see CARNIOLA.

**Krait**, species of Indian cobra (q.v.).

**Krajova**, see CRAJOVA.

**Krakatoa**, or **Krakatau**, small volcanic is. in Sunda Strait, between Java and Sumatra, Indonesia. There was a phenomenal eruption here in Aug. 1883. The sound waves generated by the explosions travelled 3000 m. Stupendous waves, towering 50 ft high, overwhelmed shores and settlements, caused over 35,000 deaths, and actually reached Cape Horn (7818 m. away). On the is. itself the highlands, which had risen over 1000 ft above sea level, were replaced by an abyss of as many feet deep.

**Kraken**, fabulous sea-monster, measuring 1½ m. round, which, according to legend, lurks round the shores of Norway.

**Krakow**, **Krakau**, see CRACOW.

**Krakowiak** (Fr. *Cracoviennne*), Polish country dance from the Cracow region. It is in moderate 2-4, like the polka, but distinguished by having syncopations in every other bar. Chopin's Op. 14 is an artistic elaboration of it.

**Královo Pole** (Ger. *Königsfeld*), NW. suburb of Brno (q.v.), Czechoslovakia.

**Kralovske Vinohrady** (Ger. *Königliche Weinberge*), E. suburb of Prague (q.v.), Czechoslovakia.

**Kramatorsk**, tn in Stalino oblast of E. Ukraine. It is the main centre of heavy engineering in S. Russia, and is an important railway junction founded in the late 19th cent. as a railway station; tn since early 1930's. Pop. (1956) 117,000 (1926, 12,000; 1935, 142,000; 1939, 93,000), mainly Russian.

**Krameria**, see RHATAN.

**Kramers**, Hendrik Anthony (1894-1922), Dutch physicist, b. Rotterdam. Studied at Leyden, and worked with Bohr at Copenhagen (1916-20), where he made theoretical estimates of the intensities of spectral lines. He later made various important contributions, including the prediction of the Raman effect, and the solution of mathematical difficulties in theoretical physics.

**Kranach**, Lucas, see CRANACH, LUCAS.

**Kraniska**, see CARNIOLA.

**Kras**, see KARST.

**Krasicki**, Ignacy (1735-1801), Polish priest and poet, b. Dubiecko, Galicia; studied under the Jesuits and in Rome. He became Bishop of Ermeland or Warmia

(1767), and Archbishop of Gnesen (Gniezno) (1795). When Poland was divided between Russia and Germany (1772) K. went to Berlin, and in 1780 consecrated the first Rom. Catholic church in Berlin, which had been erected through his influence. His works include *Myszei*, or *Moustad*, a mock-heroic poem, in which mice take the chief parts (1778), and *Satires*, supposed to be unequalled in the Polish language (1778).

**Krasin, Leonid Borisovich** (1870-1926), Russian politician. As a student he joined in 1890 one of the first Social Democratic organisations in Russia. In 1900-3, working as an engineer, he was a leading member of Iskra (q.v.) and of the Bolshevik faction. In 1904-5 K. opposed Lenin's dictatorial methods within the party and had him expelled from the Central Committee, but later, together with Lenin and Bogdanov, led the Bolshevik faction in the 1905-7 revolution. He again broke with Lenin in 1909, and worked at the Siemens-Schuckert Co., first in Berlin, then as managing director of the St Petersburg branch. From 1918 he was chairman of the Council for Army Supply and People's Commissar for Trade and Industry and for Transportation in the Soviet Gov. He was a member of the Presidium of the Supreme Council of National Economy and later Commissar for Foreign Trade. Between 1922 and 1926 he was twice ambas. to England and once to France. K.'s outstanding technical and business ability played a considerable part in organising the Soviet economy, while his example and persuasion induced many technical specialists to work for the Soviet Gov. See life by his wife, 1929.

**Kraslice** (Ger. Graslitz), Czechoslovak town in the region of Karlovy Vary (q.v.), near the Ger. border. It manufactures musical instruments and toys. Pop. 6300.

**Krasnodar:** 1. Kray in N. Caucasus (S. Russia), adjacent to the Black Sea and the Sea of Azov, traversed by R. Kuban', with rich black-earth soil. There are oil, gas, and cement marl deposits. It is one of the main agric. regions of the country: wheat, sunflower, rice, tobacco growing, extensive orchards and vineyards; livestock is raised. There are also food industries, oil extracting and refining, cement production, and agric. engineering. The prin. tns are K., Armavir, Novorossiysk, Maykop, and Sochi. The area N. of Kuban' belonged to the Crimean Khanate, annexed by Russia in 1783; the Black Sea littoral was annexed from Turkey in 1829, and the Circassians S. of Kuban' conquered by 1864 (many emigrated to Turkey). The first Russian and Ukrainian colonists were Don and Zaporozh'ye Cossacks. The Kuban' region was one of the strongholds of anti-Bolshevik resistance in 1918-20 and 1929-33 (see COLLECTIVISATION OF AGRICULTURE). There was much fighting in 1942-3. Area 32,800 sq. m.; pop. over 3,000,000 (Russians, Ukrainians, some Armenians, and Circassians).

2. (until 1920 Yekaterinodar) Cap.,

economic and cultural centre of the above on the Kuban'. It has varied food and light industries, engineering, and oil refining. It is an important railway junction (4 lines). Founded in 1794 by Cossack colonists from Zaporozh'ye. It became cap. of the Kuban' Cossack region in 1860. It was a centre of anti-Communist resistance in the Civil war. 1918-1920, and was occupied by Germans 1942-3. A univ. was founded in 1919, and abolished in the 1920's. Pop. (1956) 271,000 (c. 1914, 100,000; 1939, 204,000).

**Krasnogvardeysk**, see GATCHINA.  
**Krasnovodsk**, major Caspian seaport in the Turkmen S.S.R. It is the terminus of the Transcaspiian railway and of pipelines from the Nebit Dag oilfields. It contains an oil refinery and is an important transshipment centre. Pop. 150,000.

**Krasnoyarsk:** 1. Kray in central Siberia, stretching along R. Yenisey from Sayan Mts to the Arctic Ocean; W. Siberian lowland W. of Yenisey, central Siberian plateau E. It is largely covered with coniferous forests, but there is tundra in the N. and fertile steppe 'oases' in the S. There are large coal, graphite, iron ore, gold, non-ferrous metals, and uranium deposits. K. has mining, timber, and food industries, engineering, grain-growing, cattle- and reindeer-breeding, and fur hunting. A large hydro-electric station (3,200,000 kw.) is under construction. The prin. tns are K., Noril'sk. It is an area of banishment, and there are labour camps and great construction projects. Area 928,000 sq. m.; pop. (without K. city) (1956) 2,146,000, Russians (since 17th cent.), also Khakas, Evenki, and smaller Siberian tribes.

2. Cap., economic and cultural centre of the above, on the Yenisey and the Trans-Siberian Railway, directly subordinated to the gov. of the Russian Federal Rep. It has heavy engineering, shipbuilding, light, and food industries. It was founded in 1628 as a Russian fort, became prov. cap. in 1823, and grew rapidly as administrative centre of a gold-mining area; its industrial development dates from the construction of the Trans-Siberian Railway and particularly from the Second World War. One of the chief organisational centres in the development of Siberia. Pop. (1956) 328,000 (fourth in Siberia; 1897, 27,000; c. 1914, 80,000; 1926, 72,000; 1939, 190,000).

**Krasnyy Luch** (formerly Krindachevka), town in the Voroshilovgrad oblast of E. Ukraine, an important coal-mining centre. Founded as a workers' settlement, in 1929. Pop. (1956) 69,000 (1939, 51,000; 1926, 12,500).

**Krasnin**, see KRASIN.

**Kraszewski, Józef Ignacy** (1812-87), Polish author, b. Warsaw, educ. at Wilna. A voluminous and versatile writer and author of numerous novels. His poems are also very popular, and include *Anafelias*, 1840-3, an epic of the traditions of Lithuania, and *Satan and Women*. Among his works on travel and hist. are *Recollections of Odessa* and *History of Wilna*. He was editor of the *Athenaeum*

at Wilna, 1841-52, and in 1863 migrated to Dresden. Suffered imprisonment from 1884 to 1886 for high treason.

**Kraus, Karl** (1874-1936), Austrian poet and satirist. He founded the jour. *Die Fackel*, 1899, in which he attacked the middle classes, and the press. He also pub. 7 vols. of essays, 6 of dramas, including *Die letzten Tage der Menschheit*, 1918, 9 vols. of verse, 1 of epigrams, and 3 of aphorisms.

**Kravchinsky, see STEPANYAK.**

**Kray**, territorial administrative unit in the U.S.S.R. similar to oblast (q.v.), but usually containing an autonomous oblast within its boundaries.

**Krefeld**, Ger. tn in the Land of N. Rhine-Westphalia (q.v.), 12 m. NW. of Düsseldorf (q.v.). It is the largest tn on the l. b. of the lower Rhine (q.v.). K. was a prosperous tn in the Middle Ages, but its great industrial importance dates from the founding in it of a textile industry by Huguenots (q.v.) in the 17th cent. The anct fortress of *Linn* now contains a folklore museum, and there are schools of textile engineering, dress design, and agric. science. Apart from its textile industries, K. has manufs. of iron, steel, rolling-stock, chemicals, and foodstuffs. There are frequent agric. markets. The tn of Urdingen, on the Rhine bank, was incorporated with K. in 1929. Pop. 195,300.



Karsh, Ottawa

FRITZ KREISLER

**Kreisler, Fritz** (1875- ), Austrian violinist, b. Vienna. Studied music in Vienna under Joseph Hellmesberger, junior, and also in Paris under Delibes and Massart. He gave concerts in Europe and in the U.S.A., and pub. numerous pieces for violin and pianoforte. In 1935 he revealed the fact that most of those to which he attached the names of more or less unknown 17th-18th cent. composers were really of his own composition. He also wrote a string Quartet, and shared with Victor Jacobi in an operetta, *Apple Blossoms*, New York, 1919. Elgar's violin Concerto is dedicated to him.

**Kremenchug** (Ukrainian Kremenchuk), tn on the Dnieper, in Poltava oblast of the Ukraine. Engineering, textile industries; transfer of timber from water to rail for Khar'kov. Founded 16th cent. as a fortress; cap. of New Russia (q.v.) 1765-89; until 1917 important centre of grain trade; suffered greatly in 1918-20 and 1941-3. Pop. (1956) 77,000 (1914, 100,000; 1926, 59,000; 1939, 90,000).

**Kremer, Gerhard**, see MERCATOR.

**Kremlin** (Russian Kremli'), citadel within a Russian tn. They were originally medieval fortresses, but in their present form most remaining K.s date from the 16th-17th cents. The best known is the Moscow K., which is a public museum of Russian architecture. It was built in 1156 of wood; white stone walls were built in 1367, and the present brick walls, roughly in the form of a triangle, in 1485-1495. There are 20 towers, built in the 15th cent. In the centre of the K. is the cathedral square, with the cathedral of the Assumption (built 1475-9 in the Vladimir style) where the tsars were crowned and patriarchs buried, which contains 12th-14th-cent. icons, 16th-18th-cent. frescoes, and Ivan the Terrible's throne (1551). Also in the square are the cathedral of the Annunciation (built 1484-9 in the Moscow style), with frescoes of 1508 and many old icons, and the cathedral of the Archangel Michael (1505-9), where tsars were buried.

The Moscow K. contains 15th-17th-cent. icons, the bell-tower of John the Great (1505-1600), the Hall of the Facets, former audience chamber of the tsars (1491), with the Belvedere Palace (1636) near by, and the Great K. Palace (1838-1849). Among other notable buildings are the former Senate House (built 1788, and now the gov. building) and the Armoury (1851), housing a rich museum of 14th-19th-cent. applied arts and crafts. There are also in the K. the enormous Tsar Cannon (1586) and the Tsar Bell (1735). Considerable restoration work has been carried out recently. During Stalin's rule it was closed to the public, but it was opened again in 1955.

**Kremnitz** (Hung. Kőrmöcsbánya), tn in Slovakia, 10 m. W. of Bańska Bystrica.

**Krems**, Austrian tn in the prov. of Lower Austria, on the Danube, at the E. end of the Wachau (q.v.). It has a 13th-cent. Dominican church, now a museum, other fine churches, and anct houses and courtyards. There is a trade in wines and fruit, and manufs. of preserves. Pop. 20,350.

**Kfenek, Ernst** (1900- ), Austrian composer, b. Vienna. Studied in Vienna and Berlin. Has composed symphonies, piano sonatas, etc., and achieved fame by a sensational opera *Jonny spielt auf* ('Johnny strikes up'), which shows jazz influences. It was produced at Leipzig in 1927 and also performed in New York (1929). His other operas include *The Leap over the Shadow*, 1925, *The Life of Orestes*, 1930, and *Charles V*, 1938. K. emigrated to the U.S.A. on Hitler's domination of Austria in 1938. His later music adapts the Schoenbergian 12-note system. His

large catalogue covers almost every category of music.

**Kreuger, Ivar** (1880-1932), Swedish industrialist and financier, the 'Match King,' b. Kalmar. After working in America and S. Africa he returned to Sweden to found the Swedish Match Trust, which obtained a virtual international monopoly of match-making. His financial operations placed various European govts. under obligations to him; but he committed suicide after the disclosure of his intricate network of fraud and forgery, involving immense losses in America, France, and Sweden. See life by E. Sterner, 1930.

**Kreutzer, Rodolphe** (1766-1831), Fr. violinist and composer, b. Versailles, to whom Beethoven dedicated his A major violin sonata (Op. 47). This sonata, the most brilliant of the 10 which Beethoven wrote for the violin, is always known as the K. sonata.

**Kreuzer**, small copper coin (100 K. = 1 gulden) formerly in use in Austria, so called from the cross (*Kreuz*) stamped upon it. It was first coined in the 13th cent., when it was of silver. K.s were also used in S. Germany before the founding of the empire (60 K. = 1 gulden).

**Kreuznach, Bad**, Gor. spa in the *Land* of Rhineland-Palatinate (q.v.), on the Nahe, 23 m. SW. by W. of Mainz (q.v.). It is picturesquely situated in a fertile valley, at the foot of a castle-crowned hill. It is a centre of the wine trade, and has salt and textile industries. Pop. 30,000.

**Kriegspiel** (war game) is a scientific game of Ger. origin, as its name denotes, in which the movements, etc., of war are imitated on a small scale. Marshal Keith in the 18th cent. invented a game which he called *Kriegs-schachspiel* (war chess), but the game in its modern form was invented in 1824 by the Prussian officer von Reisswitz. It was quickly adopted as a method of instruction in the Prussian Army, and thence spread to the armies of all countries. The materials for the game are blocks cut and moulded to scale to represent different units of an army, and coloured in two different colours, some pairs of dividers, and measures of the same scale, and maps. If a small number of troops is engaged large-scale maps are essential, more so than if large bodies are employed. Printed regulations are not of much service in K., and the decision of a competent umpire is more valuable. Three maps should be used, one for each of the contending armies and one for the umpire. The umpire's map shows the position of both the opposing forces, but each of the other maps reveals only the troops of one side, and as many of the enemy as the umpire decides would be visible in actual warfare. A general idea of the military position is first given to each commander; this is followed by a 'special idea,' which gives details as to the disposition of troops, the character of the country, etc. Each player then frames his orders, to which he is held. The time for a move is 2 min., and the troops can only be moved for

such a distance as would have been traversed in actual fact in such a time. Smaller units yield to larger ones when attacked by them, and when artillery is firing on infantry, the loss of the latter is determined by a table of odds in conjunction with a throw of the dice. Repulsed troops cannot come into action for 5 moves (10 min.), and defeated troops for 10 moves, whilst totally defeated troops are removed from the map. See *The Tactical War Game*, 1884, trans. by MacDonnell, and H. G. Wells, *Little Wars*, 1931.

**Krilium**, synthetic chemical used as a soil conditioning agent. Its main use is in glasshouse soils as the cost of field application is excessive.

**Krimmitschau**, or **Crimmitschau**, Ger. tn in the dist. of Karl-Marx-Stadt, on the Pleisse, 23 m. W. of Karl-Marx-Stadt (q.v.). It has textile and engineering industries. Pop. 30,000.

**Kris, Creese**, or **Crease**, Malay knife or dagger (q.v.), often with a wavy blade. The hilt, of ivory or wood, and the characteristically T-shaped scabbard may be richly ornamented.

**Krishna**, Hindu deity, the eighth incarnation of Vishnu. His worship has been much in vogue in modern times. He was the son of Vasudeva and Devaki, and his bp. is given as Mathura, between Delhi and Agra. He is represented as being brave and fearless, but crafty, while in the popular legends concerning him and in his worship as Vallabhabacharya one sees the most depraved side of modern Hinduism. He figures in the *Hariwansa-patran* and the *Bhagavata-puranas*, 2 additions to the great Indian epic, the *Mahabharata*. Early ideas of K. are mingled with myths of lightning and fire, heaven and the sun.

**Krishna**, or **Kistna**, riv. of S. India, rises in the W. Ghats, 40 m. from the Arabian Sea; at its source is an ancient temple, to which large numbers of pilgrims resort. From here the riv. flows through the Bombay State and drops steeply from the tableland of the Deccan, receiving its 2 chief tribs., the Bhima and the Tungabhadra. It formed the boundary between Hyderabad and the Madras State, and enters the Bay of Bengal by 2 mouths, an immense delta. Its total length is 800 m., but its course is too rocky and rapid for navigation.

**Krishnagar**, tn of W. Bengal State, India. It has a Church Missionary College, and is the seat of a Rom. Catholic bishop.

**Krishnamurti** (1897- ), Indian mystic, b. Madanapalle, Madras, son of Jiddu Naraniah, was an employee in the revenue dept. of the Brit. Gov. and a Theosophist. He was called K. after a custom in S. India that the eighth child, if a boy, should be named in honour of Krishna, a divine incarnation, who was an eighth child. In 1909 K. came to the notice of Annie Besant and her colleague, C. W. Leadbeater. They recognised in K. latent faculties which they believed would, when developed, make him a great spiritual teacher. The two Theosophist leaders offered K. the education necessary for his

mission, and his father, a poor man, gladly accepted, and gave Annie Besant the care of K. In 1911 Dr Besant took the boy with her to Europe, and announced publicly the spiritual greatness latent in K. Thousands of Theosophists all over the world banded themselves together into an organisation called 'The Order of the Star in the East,' to prepare the work which K. was expected to do when he reached manhood. In 1925 Nityananda, younger brother of K., d. From that moment K. came before the world of his own accord as a spiritual teacher, who desired to help all men to attain the supreme and lasting happiness which he had found within himself. Later he developed a deeply interesting and original philosophy of life, teaching that an organisation for spiritual purposes inevitably becomes a barrier in the individual search for truth, and creates distinctions which lead to spiritual domination and exclusiveness. As a result of this view, he dissolved in 1929 his own order of the Star, which had grown into an international movement. K. made no claim to be the world teacher in the sense in which this term is used by the Theosophists, nor had he any wish to found a religion. He repeatedly declared that he had no disciples, and desired none. In particular he repudiated all authority in spiritual matters and the div. of spiritual teaching into esoteric grades reserved for the few. See L. Heber, *Krishnamurti, the Man and his Message*, 1931, and *Krishnamurti and the World Crisis*, 1935.

**Kristiania**, see OSLO.

**Kristiansand**, seaport on the S. coast of Norway, co. tn of Vest-Agder, close to the Skagerrak, 175 m. SW. of Oslo by sea. Its scenery is still very picturesque, though there is considerable industry and trade, and fishing and shipping are carried on. K. lies on the S. Norway railway linking Oslo with Stavanger. Pop. 26,000.

**Kristianstad**, fortified cap. of the S. prov. of K., Sweden. It is situated near the Baltic (14 m. away), on the R. Helge, 265 m. SW. of Stockholm. It is noted for its fine church, and manufs. linen and woollen goods, besides gloves. Pop. 24,701; prov. 259,398.

**Kristiansund**, seaport tn of Norway, 85 m. WSW. of Trondhjem, on 4 is. in the Atlantic, which enclose its fine natural harbour, which has in recent years been extended. It was founded in 1734 by Christian VI of Denmark. It exports large quantities of dried cod and salt fish and has sev. modern fish-freezing plants. Pop. 17,000.

**Kristinehamn**, see CHRISTINEHAMM.

**Kristmundsson Adalsteinn**, see STEINARR, STEINN.

**Krithia**, Battles for, fought on 28 April, 6-8 May, 4 June 1915. See GALLIPOLI CAMPAIGN.

**Krivoy Rog** (Ukrainian Krivyy Rih), city in Dnepropetrovsk Oblast of the Ukraine, 85 m. SW. of Dnepropetrovsk. It is the centre of K. R. iron-ore area, one of the richest in the world, and has large metallurgical, chemical, and engin-

earing (mining equipment) industries. It is also a railway junction and a local cultural centre. K. R. was founded in the 17th cent. by Zaporozh'ye Cossacks; its recent growth is partly due to the fusion of mining settlements stretching N. to S. for 40 m. Iron ore was mined here by Scythians sev. cents. BC; modern industry dates from 1881. The tn suffered greatly during the Russian civil war and Second World War (occupied 1941-4). Pop. (1956) 322,000 (c. 1914, 18,000; 1926, 38,000; 1939, 198,000), Ukrainians and Russians (before the war also Jews).

**Krk** (It. *Veglia*), Yugoslavian is. in the Adriatic, off the coast of Croatia. The cap., also called K. (pop. 2800), has a 13th-cent. cathedral and many other anct. buildings. The is. produces good wines, and is well known for its fruit. Area about 170 sq. m.; pop. 20,000. See ISTRIA.

**Krka**, see SLOVENIA.

**Królewska Huta**, see CHORZÓW.

**Krone**, unit of the monetary systems of Norway, Denmark, and Sweden (in the last, krona). Twenty Norwegian kroner equal £1 sterling.

**Kronstadt** (Russian transcription of *Kronstadt*), tn and naval fortress in Leningrad oblast of NW. Russia, on the is. Kotlin in the Gulf of Finland, 18 m. W. of Leningrad. It was founded by Peter the Great as a naval base in 1703, and was the commercial harbour of St Petersburg until the 1880's. K. sailors enthusiastically supported the Bolsheviks in 1917, but rose against Communist dictatorship in 1921 (*Kronstadt Rising*). Pop. (1956) under 50,000 (1897, 60,000; 1926, 31,000).

**Kronstadt, Father John of**, see JOHN OF KRONSTADT, FATHER.

**Kronstadt, Rumania**, see STALIN (tn).

**Kroonstad**, dist. and tn of Orange Free State (q.v.), S. Africa, 110 m. SSW. of Johannesburg. The dist. is separated from the Transvaal by the Vaal R. The tn of K., founded in 1855, is the centre of a prosperous maize-growing and dairy farming dist. It is the second largest tn in the prov., and a railway centre, while its commercial importance is enhanced by its grain elevator, a clothing factory, and engineering and motor assembly plants. The discovery of rich gold deposits at Odendaalsrust (q.v.), 30 m. away, has brought additional prosperity to K., which is the prin. educational centre for the N. Orange Free State. Pop. 57,580.

**Kropotkin**, Prince *Pétr Alekseyevich* (1842-1921). Russian geographer and revolutionary, one of the main theorists of anarchism. In 1862-7, while serving as officer for special duties to the governor-general of E. Siberia at Irkutsk, he travelled widely in Manchuria and E. Siberia, studying the orography of the area. K. proved that the main structural lines of Asia run from SW. to NE. Later he compiled the part on Russia for E. Reclus's *Universal Geography*. In 1872 K., while in Switzerland, joined the International Working Men's Association, in which he took Bakunin's side against

**Marx.** As a revolutionary propagandist he was imprisoned in Russia (1874-6) and France (1883-6) and expelled from Switzerland in 1881. He lived in England from 1886 until after the Feb. Revolution (q.v.), 1917, when he returned to Russia. K. developed the theory of Communist Anarchism based on the idea of mutual aid as the higher form of Darwin's 'struggle for life.' He opposed all state power and advocated the abolition of states and of all private property (including consumer goods) and the transformation of mankind into a federation of mutual-aid communities. The majority of his followers were in France. See his *The State, its Part in History*, 1898, 1943; *Fields, Factories, and Workshops*, 1899, 1919; *Memoirs of a Revolutionist* (2 vols.), 1899, 1906; *Mutual Aid, a Factor of Evolution*, 1902, 1939; *Modern Science and Anarchism*, 1903, 1943; *The Geography of Asia*, 1904; *Russian Literature*, 1905, 1916; *Ethics: Origin and Development*, 1924; and his article 'Anarchism' in *Encyclopaedia Britannica*; also R. N. Baldwin (ed.), *Kropotkin's Revolutionary Pamphlets*, 1927; and H. Read (ed.), *Kropotkin, Selections from his Writings*, 1942.

**Krosno Odrzańskie** (Ger. **Krossen**), tn of Poland, in Zielona Góra prov., on the Oder at the mouth of the Bobrawa (q.v.), 25 m. WNW. of Zielona Góra (q.v.). It passed to Brandenburg (q.v.) in 1482. During the Second World War it was severely damaged; after the war the tn was given to Poland, and the Ger. inhab. left. It is a riv. port, and has textile, metal, and wood industries. Pop. 5000.

**Krossen**, see KROSNO.

**Kroton**, Italy, see COTRONE.

**Krug, Wilhelm Traugott** (1770-1842), Ger. philosopher and writer, b. Radis, Prussia, the originator of the system called transcendental synthesisism, which endeavours to combine Idealism and Realism. He studied at Wittenberg, and was later appointed assistant prof. of philosophy in consequence of his *Letters on the Perfectibility of Revealed Religion*. In 1801 he was extraordinary prof. of philosophy at Frankfurt-on-the-Oder; ordinary prof. of logic and metaphysics at Königsberg (1804), and ordinary prof. of philosophy at Leipzig (1809). His prin. writings are *System der theoretischen Philosophie*, 1806-10 (Eng. trans., *A System of Theoretical Philosophy*), *Geschichte der Philosophie aller Zeit*, 1815 (Eng. trans., *History of the Philosophy of Ancient Times*), *System der praktischen Philosophie*, 1817-19 (Eng. trans., *System of Practical Philosophy*), and his autobiography, *Meine Lebensreise* (2nd ed.), 1840.

**Kruger, Stephanus Johannes Paulus** (1825-1904), 4 times president of the Transvaal rep., b. Colesburg, Cape of Good Hope. The founder of the family was Jacob K., who in 1713 was sent to Cape Colony by the Dutch E. India Co.; in the family on both sides Huguenot names are found. K. accompanied his parents in the great trek from Cape Colony to the country N. of the Orange R.

between 1835 and 1840. His education was primitive, and almost his only book was the Bible. The Dutch Reformed Church of the Transvaal was divided into 3 sects, and to the narrowest and most bigoted of these, the Dopper sect, the Kruger family belonged. All through his life he considered himself to be under special divine guidance and protection, and to this he owed much of his influence over his followers. At the age of 17 he was an assistant field cornet, at 20 a field cornet, and at 27 took command of an expedition against Sechele, the Bechuana chief. In 1852 the Transvaal was declared independent by the Sand River Convention, and from that time was in a very unsettled condition; K. entered freely into all the disputes of the factions. In 1856-7 he joined Marthinus Pretorius (q.v.) in an abortive attempt to compel a federation between the Transvaal and the Orange Free State. In 1864 Pretorius was made president of the Transvaal, and K. commander-general of the forces. In 1870 the public dissatisfaction over the Keate award in a boundary dispute caused the downfall of Pretorius's gov. K. acted with such bitterness and hostility to the new administration, under T. F. Burgers, that in 1877 the Transvaal was annexed by Great Britain. K. accepted office under the Brit. Gov., but was dismissed in 1878. In 1880 the Boer rebellion occurred, and K., with Gen. Joubert and Pretorius, negotiated the terms of peace. In 1883 he was elected president, and in the following year attended the London Convention. In 1886 he secured re-election as president. During all his terms of power he was bitterly hostile to Uitlanders, and this was one of the factors which brought about the Boer War. His policies were regarded as uncompromising in the extreme and the Uitlanders accused the K. gov. of unconscionable exploitation. In 1899, after a fruitless convention with Sir A. Milner, war was declared. K., after attempting in vain to influence the European powers on his behalf, fled to Europe and resided at Utrecht. He d. at Clarens, on the shore of Lake Geneva, whither he had gone for his health, and was buried at Pretoria. See J. F. van Oordt, *P. Kruger en de opkomst der Zuid-Afrikaansche Republiek*, 1898; F. H. Statham, *Paul Kruger and his Times*, 1898; *The Memoirs of Paul Kruger*, by himself, 1902; M. Juta, *The Pace of the Oer*, 1939.

**Krugersdorp**, tn in the Transvaal prov., S. Africa, 20 m. WNW. of Johannesburg. Founded in 1887, and named after President Kruger (q.v.), K. is the chief tn of the W. Rand, owing its prosperity largely to the gold-fields. Manganese deposits are found in addition to the gold-mines in the municipal area, and there are tanning, engineering, and paint industries. Uranium is also produced by some of the gold-mines. There is an ann. national pilgrimage to the Paardekraal monument, dedicated to the victory of the Boers over Dingaan (q.v.) in 1836. At Doornkop, 12 m. away, Dr Jameson (see JAMESON,

SIR LEANDER STARR) surrendered to Cronje in 1896, and in 1900 there was fighting there during Lord Roberts's advance to Johannesburg. At Sterkfontein, 8 m. away, are limestone caves. There is a pleasure ground at Coronation Park. Pop.: Whites, 26,806; Bantu, 46,315; Coloureds, 1734; Asiatics, 697.

Krumau, see ČESKÝ KRUMLOV.

Krummauer, Friedrich Wilhelm (1796-1868), Ger. preacher and religious writer, b. Mörs on the Rhine, son of Friedrich Adolf K., the author of *Die Parabeln*. He was preacher in the Reformed Church at Frankfurt, Ruhrort, Barmen, Elberfeld, and Berlin, and in 1853 court chaplain at Potsdam. Among his works are *Salomo und Sulamith*, (trans. 1838), *Elias der Tishbiter*, (trans. 1838), *Elisha*, 1835, *Das Passionsbuch*, 1870, *David*, 1867, and an autobiography, 1869 (trans. 1871).

Krung Kao, see AYUTHIA.

Krupp, Alfred (1812-87), founder of the celebrated iron and steel works at Essen in Germany, b. at that tn, and succeeded his father in possession of a small iron forge in 1848. His first efforts were in the direction of producing axles and tyres for railways. K. adopted the steam-hammer and the Bessemer process of manufacturing steel in 1857, and turned his attention to the production of large armaments. He had already in 1847 produced his first cannon, a three-pounder cast-steel muzzle loader. Studying especially the production of cast-steel blocks of great weight, he at length (1880) succeeded in forging a breech-loading gun of 100 tons, the largest of its kind at that date. He was also a pioneer in producing specially hardened armour for warships. Though at first ignored by the Ger. Gov., he at last received due appreciation, and was frequently visited by the first Emperor William. With the growth of his business he was able to acquire large mines and collieries, and the K. works at Essen, Kiel, Annen, and Gruson were employing some 70,000 persons in 1913. He was succeeded by his only son, *Friedrich Alfred K.* (1854-1902), by whom was constructed an immense 135-ton gun for the defence of Kronstadt, and who was in turn succeeded by his daughter, *Frau Bertha*, married to Baron K. von Bohlen und Halbach. (See W. Berdrow, *Friedrich Krupp*, 1915, and *Alfred Krupp*, 1926.)

At the outbreak of the Franco-Prussian war in 1870 the K. armament works at Essen covered 450 ac. of ground, and employed more than 8000 men. Around the factories were grouped 'K. colonies' of model vills, housing the workers, and complete with flour-mills and bakeries, provision stores, and schools. The works were then producing 9-in. guns at the rate of one a day. K. armaments were then establishing the new Germany as the foremost military power in the world. By 1914 the K. works covered more than 2000 ac., and gave employment to 80,000 workers, while exporting artillery of all sizes to almost every gov. in Europe. During the First World War K.s had practically the monopoly of armament

manuf. in Germany, and so acquired considerable *éclat* from the making of long-range guns for the artillery (see also BERTHA, Big). At the close of the war the firm was employing well over 150,000 persons. Between the wars they turned their attention to the manuf. of agric. machinery, steam engines, etc., and extended their influence by acquiring the control of many Ger. iron and steel companies. After the advent of the Nazi regime and the rearmament of Germany K.s reverted to armament production, and did so on a scale unsurpassed elsewhere in the world. Their employees in 1938 numbered 123,000. The K. works at Essen were subjected on 11 Mar. 1945 to the heaviest air attack ever delivered up to that date by the R.A.F. bomber command. After the Second World War parts of the remaining works were dismantled, and a large steel plant was shipped to Russia. *Alfred Felix K.* (b. 1907) was arrested and sentenced to 12 years' imprisonment. But he was released in 1951 and though about three-quarters of the concern was split up by allied decree in 1953 he retained some engineering plants in Essen and a motor factory. In 1957 K. signed a contract to build a chemical factory in the Soviet Union at the cost of 17 million marks, this being his first venture into the Russian market since the war. See also ESSEN and WORLD WAR articles. See B. Menn, *Krupp, Deutschlands Kanonenkönige*, 1937; G. von Klass (trans. J. Cleugh), *Krupps: The Story of an Industrial Empire*, 1954.

Krusevac, tn in Serbia, Yugoslavia, on the Morava. Before 1389 it was the cap. of the Serbian princes. It is a mkt tn, and manufs. wine, tobacco, and munitions. Pop. 18,150.

Krušné Hory, see ERZGEBIRGE.

Krutch, Joseph Wood (1893- ), Amer. critic, b. Nashville, Tennessee. He was educ. at the Univ. of Tennessee and Columbia Univ., where he joined the staff of the Eng. Dept in 1917 and subsequently became professor. From 1924 onwards he was dramatic critic of the *Nation*. His works include *Edgar Allan Poe, a Study in Genius*, 1926, *The Modern Temper*, 1929, *Five Masters*, 1930, *Experience and Art*, 1932, *The American Drama Since 1918*, 1939, *Samuel Johnson*, 1944, and *The Desert Year*, 1952. He also ed. the plays of Congreve and of Eugene O'Neill.

Krylenko, Nikolay Vasil'evich (1885-1940), Russian Communist. He was active as a Bolshevik (see BOLSHEVISM) during the revolution of 1905 (q.v.), then became an Anarcho-Syndicalist (*In Search of Orthodoxy*), but later returned to the Bolshevik party. After the Feb. revolution (q.v.) in 1917 he took an active part in the seizure of power by the Bolsheviks (see OCTOBER REVOLUTION) and belonged to the first Bolshevik gov. as a commissar for war. Soon after the coup K., who was only a warrant-officer, was appointed C.-in-C. of the Russian forces. In 1918 he became public prosecutor in revolutionary tribunals, in

1922 deputy commissar (1931, commissar) of justice of the R.S.F.S.R. and chief public prosecutor at the Supreme Court, in which capacity he took part in the earlier show trials. In 1936 he was appointed commissar of justice of the U.S.S.R. but disappeared without trial during the Great Purge (q.v.) in 1937.

**Krypton** (Gk, 'hidden'), symbol Kr; atomic number 36; atomic weight 83.7. A gaseous chemical element found in the atmosphere. Isolated in 1898 by Ramsay and Travers from the residues left after distilling off the higher boiling-point constituents of liquid air. K. is present in air to the extent of about 1 part in 20,000,000. Its molecule consists of 1 atom only. K. can be detected spectroscopically. It can also be converted into a liquid and then into a solid, by cooling in liquid air. K. has a density of 3.71 gm. per litre, a boiling-point of  $-151.7^{\circ}\text{C}$ ., and a melting-point of  $-169^{\circ}\text{C}$ . See INERT GASES.

**Kilma**, see PARHOS.

**Kuala Lumpur**, cap. of the Malay state of Selangor, nearly opposite Port Swettenham on the W. coast of the Malay Peninsula and the heart of the Malayan rubber and tin-mining industries. With a good water supply and lit by electricity, it was remarkable before the Second World War for its easy, opulent way of life, due to the prosperity of the rubber and tin companies. The native quarters are within the city; the residential areas, where officials and business men live, in the outskirts. In these areas are spacious houses, with marvellous gardens, where cannas and hibiscus shrubs bloom in profusion. When K. L. fell to the Jap. invaders in Jan. 1942 the city presented a tragic spectacle. Columns of black smoke rolled upwards as the stocks of rubber were destroyed by the Brit. authorities, and estates which had involved years of labour and expenditure were ruined. Occasional detonations marked the destruction of the machinery in the tin mines and the blowing up of numerous bridges round the city. Little, however, had been destroyed in the residency and administration buildings when the Brit. evacuated the city. K. L. is the cap. of the Federation of Malaya. Pop. 250,000.

**Kuanza**, see COANZA.

**Kuba**, Khanate in NE. Azerbaijan (q.v.), semi-independent from Persia, formed in the 18th cent. It was annexed by Russia and abolished in 1806.

**Kuban** (ancient Hypanis), navigable riv. in S. Russia. It rises at a height of 14,000 ft in Mt Elbrus in the main Caucasian range and flows NW., then W. into the Sea of Azov, which it enters through many arms, forming an extensive marshy delta. Length 600 m. The chief port is Krasnodar. Since the 18th cent. the K. area has been largely populated by Cossacks (q.v.).

**Kubango**, or **Okavango**, see CUBANGO.

**Kubelik**, Jan (1880-1840), Czech violinist, b. Michle, near Prague, the son of a Bohemian gardener, who was an enthusiastic musician. He was sent to study under Ševčík in Prague in 1892, and

afterwards played all over the world, meeting everywhere with phenomenal success. Made his first appearance in England in 1900. He made a world tour in 1914. His compositions included 6 violin concertos. His son Rafael (b. 1914) is a distinguished orchestral and operatic conductor, appointed musical director of the Covent Garden Opera in London in 1955.

**Kublai Khan**, or **Kubla Khan** (1216-1294), grandson of Genghis Khan (q.v.), was the founder of the Mongol dynasty of China. Whilst his brother Mangu was on the throne, K. K. began the conquest of N. China. On the death of Mangu in 1259



he became the 'Great Khan,' and in the course of time added S. China to his empire, also Tartary, Tibet, Burma, and other countries. His empire was thus of great extent, but many of his foreign expeditions, particularly those against Japan, ended in failure. K. K. was a wise and just ruler; he encouraged trade and agriculture, and estab. Buddhism as the state religion. He delighted in pomp and display, as we see in Marco Polo's *Travels*. Chingkim, the son whom he had chosen to succeed him, predeceased him, dying in 1284, and Chingkim's son Teimur was his successor.

**Kuchean Languages**, see INDO-EUROPEAN LANGUAGES.

**Kuching**, see SARAWAK.

**Kudalur**, see CUDDALORE.

**Kudrun**, see GUDRUN.

**Kudu**, or **Koodoo** (*Strepsiceros strepsiceros*), one of the largest African antelopes; a handsome beast with reddish-brown coat marked with white stripes. The male has long spiral horns. The lesser K. (*S. imberbis*), which is only found in Somaliland and Kenya, is only about 3 ft in height.

**Kudymkar**, tn in the Perm' Oblast (Russia), cap. of the Komi-Permyak National Dist. (see KOMI-PERMYAKS), 90 m. NW. of Perm'. There is some industry and it is a local cultural centre. It was founded in the 16th cent., and became a tn in 1938. Pop. (1956) 20,000.

**Kueisui**, see HUEHOT.



**Kuen-lun**, see KUN LUN.

**Kufa**, vil. in Iraq, 90 m. S. of Bagdad. It was founded by the Arabs immediately after their conquest of the country and was for a short time the residence of the caliphs till they built their new cap.

**K.** lasted till about AD 1100, when its place was taken by Korbela (q.v.). The adjective kufi or kufic is the name of a style of writing used for early coins and Korans and on monuments.

**Kuhl**, see KOHL.

**Kuhn, Franz Felix Adalbert** (1812-81), Ger. mythologist, b. Königsberg, one of the founders of comparative mythology. Prin. works: *Märkische Sagen und Märchen*, 1842; *Zur ältesten Geschichte der indogermanischen Völker* (2nd ed.), 1850; *Sagen, Gebräuche, und Märchen aus Westfalen*, 1859; *Über Entwickelungsstufen der Mythenbildung*, 1874; *Die Herabkunft des Feuers und des Göttertranks* (2nd ed.), 1886.

**Kuibishev**, see KUYBYSHEV.

**Kuijper, Abraham**, see KUYPER.

**Kuilenburg, or Culemborg**, tn in the prov. of Gelderland, Netherlands, on the R. Lek. Its chief industries are the manuf. of furniture, metalware, cigars, and ribbon. Pop. 11,900.

**Kuitahia**, see KUTAHIA.

**Ku Klux Klan**. There have been 2 Amer. organisations of this name, one originating in the terrible reconstruction days in the S. after the Civil war, the other being started after the First World War and reaching the height of its power about 1922. The original K. K. K. was started in Tennessee in 1866 by a number of young men, who did it as much for amusement as anything else. They held secret meetings, had elaborate ceremonies, and wore white cloaks with hooded caps which hid all but their eyes. It was found that this uniform frightened the superstitious Negroes, and the Southerners at once recognised that they had a weapon in their hands. The K. K. K. was organised all over the S. under the leadership of the Tennessee cavalryman, Gen. N. B. Forrest. The K. K. K. rode by night, striking terror into the ex-slaves and into the carpet-bagger politicians from the N. But the Federal Congress enacted laws against it and by 1871 it was practically non-existent. The second K. K. K. was founded by W. J. Simmons in 1915 at a meeting near Atlanta, Georgia. Simmons, who had been a preacher and also an organiser for fraternal orders, knew how to organise an extensive 'selling' campaign. His order was chartered in Georgia, and thence began to spread rapidly, first all over the S. and then in the N. states, particularly in Indiana. Like the old K. K. K. it opposed Negroes. Also, like the old Know-Nothings and A.P.A.s (Amer. Protective Association), it opposed naturalised citizens and Rom. Catholics, adding to this a bias against the Jews. It stood for white native Protestant domination in politics and business. It became a power in politics, particularly

influencing the elections of 1922, 1924, and 1926. But some of its members soon began to commit lawless acts. The braver part of the Amer. press began a vigorous onslaught on the organisation. Internecine quarrels added to the troubles of the K. K. K. and in 1923-4 these led to the deposition of Simmons from the leadership, with a solatium of \$20,000, after which the K. K. K. soon became quiescent. Owing to a resurgence of terrorism against Negroes in 1949 the Alabama House of Representatives banned the wearing of masks.

**Kukri**, knife used in Nepal, particularly as a weapon by Gurkha troops. The blade is keen, single-edged, and doubly curved; it weighs about 4 lb. and is about 2 ft in length.

**Kuku-nor**, see KOKO-NOR.

**Kula**, famous trading cycle of the inhab. of the Trobriand Is. (q.v.) and the adjacent Is. of Melanesia. Red shell necklaces and white shell arm-bands are exchanged between trading partners on different Is., without haggling. The objects are the most prized possessions of the islanders, although they are rarely used for ornament. The possession of fine specimens gives the temporary owner high prestige in his community. See B. Malinowski, *Argonauts of the Western Pacific*, 1922.

**Kulak**, Russian word meaning a fist. Before 1917 it was used for avaricious merchants or for peasants who gained a hold over their fellows, e.g. vil. usurers. After the revolution it was used in Communist propaganda for all relatively well-to-do peasants, who were disfranchised and subjected to heavy taxation. During the Collectivisation of Agriculture (q.v.) it was a word of abuse for anyone refusing to join the collective farms. The policy of 'liquidating the K. as a class' resulted in the disappearance of over 5,000,000 peasant households.

**Kulbarga**, see GULBARGA.

**Küleli Bogaz**, see CILICIAN GATES.

**Kulja**, III, or Ningyuan, walled tn of Central Asia, in Sinkiang, on the R. III. It is one of the chief cities of the region, an important trade centre and the seat of the Russian consul. The 2 chief buildings are the Taranohi and Dungan mosques. Paper and vermicelli are manuf., and wheat, barley, poppies, and lucerne cultivated. From 1870 to 1881 it was in Russian hands. Pop. 10,000.

**Kulm**, see CHELMNO.

**Kulmbach**, Ger. tn in the Land of Bavaria, on the White Main (q.v.), in the foothills of the Fichtelgebirge (q.v.), 136 m. N. of Munich. It has ant. fortifications and a massive 13th-cent. Hohen-zollern (q.v.) fortress. Its breweries produce the famous Kulmbacher beer. Pop. 24,000.

**Kulu**, valley in E. Punjab State, India, renowned for its fruit, particularly apples and pears. It is a favourite holiday area and provides good trout fishing.

**Kulun Nor**, see DALAI NOR.

**Kulunda**, steppe area in SW. Siberia, between the R.s Irtysh and Ob', the

Altay Mts, and Baraba (q.v.), about 35,000 sq. m., divided between the Altay kray and the Kazakh Rep. (Pavlodar oblast). It is one of the main agric. areas of W. Siberia, with wheat-growing and sheep- and cattle-breeding. It is now included in the Virgin Land campaign.

**Kum**, see QOM.

**Kumamoto**, city of Kumamotoken, Kyushu, Japan, about 50 m. E. of Nagasaki (q.v.). Seat of the prefectural gov., it is a centre of education and commerce, especially of the rice trade, and is at the S. end of the Kyushu coal-field. Pop. 332,000.

**Kumania**, or **Cumania**, dist. of Europe at the time of the crusades, extending N. of the Danube and NW. of the Black Sea, comprising the present Moldavia, Wallachia, and part of S. Russia, W. of the Dnieper R.

**Kumaon**, area of Uttar Pradesh state, India, consisting of the 3 dists. of Naini Tal, Almora, and Garhwal. It lies mainly on the S. slopes of the Himalaya, and includes many of the prin. summits. The country was seized by the Gurkhas at the end of the 18th cent., but was annexed to Brit. India after the Gurkha war of 1815.

**Kumarila Bhatta**, known also as **Bhat-tacharya**, celebrated Brahmin teacher who lived c. AD 600. He was an exponent of the Mimamsa system of Hindu philosophy, and strenuously opposed the Buddhists, whom he is said to have extirpated. He annotated the *Sutras*, and was noted for his interpretation of the Vedic texts.

**Kumasi**, cap. of Ashanti Ter., Ghana, on the W. coast of Africa, and a city of some antiquity. Its port is Sekondi, on the Gulf of Guinea. It was taken in 1874 by a Brit. expedition under Sir Garnet Wolseley. It was again taken by the British in 1895-6 and 1900. It is situated in a clearing of the dense Ashanti forest. At one time 'blood-stained' K., it is now a tn of clean, straight streets and many modern buildings. There is electric light, and a piped water supply. There are sev. churches, hospitals, and schools. A gov. railway links K. with Sekondi (168 m.) via Tarkwa; and another line joins K. with Accra (192 m.). In 1900 K. was a mere fortress in the bush, though it was the most recent of the Gold Coast castles, having been built in 1897. This castle was the stronghold of the governor, Sir Frederick Hodgson, and his wife when they were besieged by the Kumasis (1900). Hodgson's small garrison had almost reached starvation point when they decided to cut their way out to the coast. Pop. about 50,000. For the part played by K. in the Ashanti wars see GHANA, *History*, and *GOLDEN STOOL*.

See W. W. Claridge, *History of the Gold Coast and Ashanti*, 1915, and W. M. Hall, *The Great Drama of Kumasi*, 1939.

**Kumbakonam**, tn of Madras State, India, in the Cauvery delta, 20 m. NE. of Tanjore. It was the anct. cap. of the Chola kings, and is a great centre for S. Indian Brahmins. There are many temples. One pagoda is 147 ft high with

11 storeys. One of the water-tanks in the tn is commonly said to be filled with water from the Ganges every 12 years by a subterranean passage 1200 m. long; and it consequently forms a centre of popular attraction. So vast a concourse of devotees enters the water that the surface rises some inches.

**Kumbum**, or **Gumbum**, important lamasery in the prov. of Kansu, China, 130 m. WNW. of Lanchow. It is a Buddhist pilgrim resort.

**Kumis**, see KOUMISS.

**Kümmel**, see LIQUEUR.

**Kumyks**, Turkic-speaking people in the Daghestan Autonomous Rep. of N. Caucasus, descendants of the Cumans (q.v.). The K. live in the lowland along the Caspian shore and number about 110,000. From the 15th cent. the K. had an independent state called after the cap. Tarki (now Makhachkala); they fell under Russian suzerainty in 1559, and were finally annexed in 1784. K. literature dates from the 19th cent. See W. Kolarz, *Russia and Her Colonies*, 1952.

**Kun**, **Bela** (1886-1939), revolutionary leader in Hungary; son of a Jewish notary at Szilágycseh. K. graduated in law at



*Topical Press*

BELA KUN

Kolozsvár. Captured by Russians early in the First World War, he was converted to Bolshevism, and was sent home as a propagandist. Károlyi (q.v.) handed over the gov. of Hungary, Mar. 1919, to Alex. Garbai, the mere tool of K., people's commissary for foreign affairs, who inaugurated wholesale communisation of property.

The country pop. was recalcitrant; and K.'s army, successful against the Czechs, was defeated by the Rumanians, upon whose advance K. fled to Vienna. He escaped to Russia but turned up in Vienna again in 1928 and was imprisoned. From 1921 he was a member of the International Communist executive and president of the Communist International, Moscow, Aug. 1928. He was reported shot in Aug. 1939 on Stalin's orders. *See also* HUNGARY. *See* life by C. Herczeg, 1928.

**Kun Long**, vil. in the Shan states, Burma (q.v.), and a ferry on the Salween.

**Kun Lun, Kwen Lun, or Kuen Lun Mountains**, term used to designate generally the mt ranges which run along the N. edge of the Tibetan plateau. In its widest sense the K. L. Mts stretch in a wavy line for nearly 2500 m. from E. to W. In the W. portion the ranges are 'squeezed' together more closely, having a breadth of 150-200 m. only, and the summits are correspondingly loftier. In the E. portion the breadth increases to 600 m. and the ranges are consequently less folded and flatter. The K. L. are the backbone of the tectonic structure of Asia. A peculiar feature of the Tibetan plateau is that the outermost border range is throughout double, as are the lake basins between the mts. The K. L. Mts are much older than either the Himalaya or the Tien-shan; the highest summits reach 21,500 to 22,000 ft, but there are no greatly outstanding peaks, as the general level is so high. The importance of the K. L. system was recognised from very early times, but K. Ritter was the first to recognise their true character; Baron von Richthofen still further defined them and represented them as a complex arrangement of sev. parallel ranges running in a wavy line from 76° to 118° E. His classification was sound in its general outline, but the details have been very considerably revised by the labours of Russian, Eng., Fr., Hungarian, and Swedish explorers, amongst whom Sven Hedin stands out pre-eminently. The K. L. are now generally divided into 3 main parts, the W., extending from 76° to 89° E., the Middle to 104° E., and the E. K. L. to about 112° E.

**Kunar**, riv. of Afghanistan which gives its name to a very beautiful valley. It rises in the Hindu Kush Mts, and is known by the various titles of Yarkhun, Chitral, Kashkar, and Kunar; it joins the Kabul R. a little below Jalalabad. The ancient names of K. and Pashat lie upon its banks.

**Kunhinjinga**, *see* KANGCHENJUNGA.

**Kundt, August Adolph Eduard Eberhard** (1839-94), Ger. physicist, b. Schwerin, Mecklenburg. He is best known for his researches in sound, and his name has been given to the method of determining the velocity of sound vibrations by dust figures. He also determined the ratio of the 2 specific heats of a gas and did some valuable work in optics, dealing with the anomalous dispersion of light and the optical characteristics of metals.

**Kunduz, or Qunduz**, tn in Kataghan prov. of NE. Afghanistan. It is the centre of an oasis irrigated by the Kunduz R. and of a cotton industry. Pop. 10,000.

**Kunene**, *see* CUNENE.

**Kunersdorf**, *see* KUNOWICE.

**Kunkel, or Kunckel, von Lowenstjern, Johann** (1630-1703), Ger. chemist. He shares with Boyle (q.v.) the credit for discovering the process by which Brandt of Hamburg had succeeded in 1669 in preparing phosphorus. This was by distilling concentrated and putrefying urine with sand. He was also a skilful manufacturer of glass.

**Kunming, or Yunnanfu**, cap. of Yunnan prov., SW. China, a city of great importance as a trade centre between the far W. and central and S. China. During the Second World War many industries were transferred to K. from the E. provs., and the city was also the Chinese terminus of the Burma Road and the K.-Haiphong railway, restored in 1957. The Yunnan Univ. and many colleges are situated in K. In 1949 the Governor of Yunnan went over to the Communists and spared the prov. a civil war. Pop. 250,000.

**Kunowice** (Ger. **Kunersdorf**), vil. of Poland, in Zielona Góra prov., 44 m. NW. of Zielona Góra and 4 m. E. of Frankfurt-an-der-Oder (q.v.). During the Seven Years War (q.v.) Frederick the Great was defeated here by an Austrian and Russian army.

**Kunti**, in Hindu mythology a heroine of the *Mahabharata*, daughter of the Yadava prince Shura. She was the mother of Karna by the sun, and afterwards became the chief wife of Pandu, and bore 3 sons, Yudhishthira, Bhima, and Arjuna, central figures in the great epic.

**Kuntsevo**, tn in the Moscow oblast of central Russia, 7 m. W. of Moscow, of which it is an industrial (aircraft, textile industries) and residential suburb. It has been known as a vil. since the 15th cent. Pop. (1956) 111,000 (1939, 61,000).

**Kuomintang**, Chinese Nationalist party, formed originally by the followers of Sun Yat-sen (q.v.). Its executive committee promulgated, on 4 Oct. 1928, the 'Organic Law' (or Law Governing the Organisation) of the Nationalist Government of the Republic of China, though in Dec. of 1931 this law was considerably amended. The Chinese National Gov. at Nanking was appointed by the K., to the congress of which it was responsible. When the Nationalist gov. was defeated by Chinese Communists in 1949, the members of the K. formed a Revolution Committee in Peking, under the leadership of Gen. Li Chi-shen and Madame Sun Yat-sen. *See further under* CHINA, *History*. *See* P. M. A. Lirebarger, *Government in Republican China*, 1938.

**Kuopio**: 1. Co. in the E. part of Finland, including N. Karelia. The surface is hilly, and large lakes cover about 17 per cent of it. The soil is of moderate fertility but very little of it is cultivated. There are engineering and chemical works, iron and steel industries, plywood manuf.,

shipyards, tanneries, and saw-mills; carts and sledges are also made, and timber, butter, furs, and game exported. Dairy farming and cattle-breeding are extensively carried on and a large quantity of iron is mined. Area 14,600 sq. m.; pop. 424,000.

2. Tn and cap. of the above, on Lake Kallavesi, is a commercial trading centre of considerable importance, and has communication with middle Finland. Pop. 50,000.

**Kupfernicksel**, mineral from which nickel is extracted. It is a compound of nickel and arsenic, NiAs.

**Kurdee Seed Oil**, see SAFFLOWER OIL.

**Kurdistan**, prov. of Persia, bounded on the N. by Azarbaijan, on the S. by Kermanshahan, on the E. by Hamadan, and on the W. by Iraq. Main tn Sanandaj, formerly called Senneh. Area about 54,000 sq. m.; pop. about 700,000.

**Kurds**. Since the 7th cent. AD the name Kurd has been applied to the W. Iranians and other Iranicised mountaineers estab. astride the Zagros. The brigand Kurtiol of Atropatian Media (Persian Azarbayjan) mentioned by Strabo (64 BC-AD 20) were almost certainly K., as were possibly the Kardouchoi who attacked Xenophon and the Ten Thousand (400 BC) near modern Zakhō.

At the present time the ter. occupied more or less continuously by the K. as a homogeneous community is divided between E. Turkey (where it extends W. to about long. 38° E.), NE. Iraq and NW. Persia, with small enclaves in Soviet Transcaucasia and Syria; isolated groups are found as far W. as Ankara, in the E. provs. of Persia, and elsewhere. The Kurdish pop. of Iraq is about 1,000,000; more conjectural estimates are 2,000,000 for Turkey and 1,200,000 for Persia, making with the isolated groups a total of about 4,750,000. The religion of the great majority is Sunni Muslim; the mystical dervish orders, some accepted as orthodox, others heterodox, have numerous adherents in all dists.; the Yazidi minority numbers perhaps 30,000.

Kurdish belongs to the NW. group of Iranian languages as distinct from the SW. Persian; as would be expected in a mountainous land that has had no political unity for cents. the dialects vary considerably, but certain distinguishing characteristics present in them all indicate descent from a common original language, perhaps the Median. Dialects of another group related rather to the central Iranian are spoken in the extreme NW. (Zaza) and towards the SE. (Gorani). In Iraq there has been lively and uninterrupted literary and journalistic activity since 1920. A few pubs. appeared at Mahabad (Persia) in 1941-5; interesting experiments in the use of the Rom. alphabet have been made by a group of intellectuals in Syria; a modified Cyrillic is being used in Soviet Transcaucasia.

The Kirkuk oilfield lies on the SW. edge of the Kurdish country, but the economy of the K. is still primarily agric. and pastoral. Nomadism is diminishing and

the rural pop. consists chiefly of settled villagers. Though not all are tribesmen the organisation of society outside the tns is still essentially tribal with groups of vils. owing a kind of feudal allegiance to a landlord, a dervish shaiikh, or a tribal chief. With the progressive consolidation of the authority of the central administrations the old social organisation is breaking down in many parts. The K. have not remained unaffected by nationalism. The first Kurdish newspaper was pub. in 1897. The first political club was founded at Constantinople in 1909. The treaty of Sèvres (1920) provided for the creation of a Kurdish state, but owing to the military revival of Turkey it remained a dead letter. Since 1920 armed nationalistic movements of varying importance, but all short-lived, have occurred in all 3 countries; in 1922-3 Shaikh Mahmud of Sulaimaniya (Iraq) proclaimed himself 'King of Kurdistan'; in 1944-5 a 'Kurdish Republic' was set up, with Russian support, at Mahabad. In Iraq the existence of the K. as a national minority is recognised by law, which specifies the dists. where the language is to be used for local administration, elementary education, and legal proceedings. See C. J. Rich, *Narrative of a Residence in Koordistan*, 1836; F. Millingen, *Wild Life among the Koords*, 1870; E. B. Soane, *To Mesopotamia and Kurdistan in Disguise*, 1912; W. R. Hay, *Two Years in Kurdistan*, 1921; W. A. and E. T. A. Wigram, *The Cradle of Mankind* (2nd ed.), 1922; A. M. Hamilton, *Road through Kurdistan*, 1943; B. Nikitine, *Les Kurdes*, 1956; C. J. Edmonds, *Kurds, Turks, and Arabs*, 1957.

**Kurgan**: 1. Oblast in W. Siberia, situated in the W. Siberian lowland, and traversed by the R. Tobol, an affluent of the Irtysh. It is a region of wooded steppe with black-earth soils. K. has wheat-growing, dairy farming (K. breed), sheep-raising, extensive food industries, and varied engineering. Area 27,500 sq. m.; pop. (1956) 982,000 Russians (since 17th cent.), and some Tartars.

2. Cap., economic and cultural centre of the above, on the Tobol and the Trans-Siberian Railway. It has engineering (agric. machinery) and various food industries, and is an important railway junction (4 lines). K. was founded in 1653 and became a tn in 1782; prior to 1917 flourishing trade in cattle, and since 1893 large-scale butter production and export. Pop. (1956) 106,000 (c. 1914. 25,000; 1939, 53,000).

**Kurhessen**, see HESSE-KASSEL.

**Kuria Muria**, group of rocky is. in the Arabian Sea, which have been in Brit. possession since 1854. They are 5 in number, and have a total area of 28 sq. m. They are chiefly used as a cable station, but guano is obtained.

**Kuriles**, or Kurile Islands (Jap. Chishima), chain of 36 is. in the N. Pacific between Kamohatka and Hokkaido, belonging to the Sakhalin oblast of the Russian Federated Rep. Total area 5700 sq. m., pop. c. 15,000, Russians and some Ainu (before 1945 Japanese),

engaged in fishing and sea-animal hunting. The main settlement is Kuril'sk on Iturup Is. The K. were Russian from the 18th cent., Japanese from 1875, and again Russian in 1945 according to the agreement reached at the Yalta Conference (q.v.; see also Cmd. 6753, 1946).

**Kurisches Haff**, bay of the Baltic Sea off the coast of the Kaliningrad oblast (former E. Prussia) and Lithuania. It extends along the coast S. of Klaipėda for more than 50 m. and is separated from the open sea by the Kurische Nehrung, a narrow sandy ridge. In the N. it opens into the sea by a narrow channel.

**Kurland**, historical name of a part of Latvia (q.v.) S. of the R. W. Dvina. The area belonged to the Livonian Knights, was a duchy under Polish suzerainty from 1561, and Russian 1795-1918. See also **BALTIC PROVINCES**.

**Kuroki, Tamemoto Tamasada, Count** (1844-1923). Jap. general, b. Satsuma. He figured prominently in the later stages of the China-Jap. war (1894-95), and was made baron for his services. In the Russo-Jap. war (1904-5) he commanded one of the armies in Manchuria, won the battle that isolated Port Arthur, and was present at Liao-Yang, Chahlo, and Mukden. He was created count for his services in this war.

**Kuropatkin, Alexei Nikolaievich** (1848-1925), Russian general, b. Chemchurin, Pskov, entered the army in 1864, and distinguished himself in the Kashgar campaign. In the Russo-Turkish war of 1877-1878 he was chief-of-staff to the younger Skobelev and laid the foundation of his great reputation as a soldier. After the death of Skobelev in 1882 he reorganised the Russian Army. He was commander-in-chief in Caucasasia in 1897, and minister of war in 1898. On the outbreak of the Russo-Jap. war (1904-5) he was appointed to the chief command in Manchuria, but met with a series of reverses culminating in the disastrous battle of Mukden. His failure may have been partly due to not having an entirely free hand. After Mukden he resigned in favour of Gen. Linievich. He wrote a hist. of the war (1909), in which he candidly admitted his own mistakes. He had previously pub. works on the Balkan and central Asian wars. In the First World War he was commander-in-chief on the N. front until his appointment as governor of Turkestan in 1916. After the revolution he sank into obscurity.

**Kursaal**, see **CASINO**.

**Kursk**: 1. Oblast in central Russia, S. of Moscow, situated on the central Russian upland, in the 'black earth' belt. It has large iron ore deposits. Wheat, sugar-beet, hemp, and sunflowers are grown and there is dairy farming, hog- and poultry-raising, and bee-keeping. The area also has engineering and food industries. In the Middle Ages K. belonged to Chernigov, then to Novgorod-Severskiy, becoming Lithuanian in 1362, and Muscovite in 1503. It was occupied by the Germans, 1941-3, and was the scene of a big battle in 1943. Area 11,900 sq. m.; pop. (1956) 1,464,000, Russian.

2. Cap., economic and cultural centre of the above, the oldest tn in the central 'black earth' region, 125 m. W. of Voronezh. It has engineering, chemical, and light industries and is an important railway junction (4 lines). K. has been known since 1095, was the cap. of a small principality in the 12th cent., was destroyed by the Tatars in 1240, fortified as a part of the Muscovite S. defence line in the 16th cent., and became the prov. cap. in 1797. It was an important commercial centre before the 1930's, then industrial development took place. Pop. (1956) 179,000 (c. 1914, 83,000; 1926, 82,000; 1939, 120,000).

**Kuruman**, tn in Cape Province, S. Africa, an important mission station. A remarkable spring yielding 4,000,000 gallons daily provides the source of the R. Kuruman. Pop.: Whites, 2000; Bantu, 1114; Coloureds, 640.

**Kurume**, city of Fukuokaken, Kyushu, Japan, 50 m. NE. of Nagasaki. Noted for its cotton industry. Pop. 139,000.

**Kurunegala**, chief tn in the W. prov. of Ceylon, was the seat of a royal residence in the 14th cent.; it is 59 m. from Colombo. Near by are some famous Buddhist monasteries. Pop. 13,500.

**Kus**, see **KIHONDS**.

**Kushiro**, city on the SE. coast of Hokkaido, Japan, cap. of K. prov. It is the nearest port to the coal-mines of K. dist. Pop. 120,000.

**Kuskovo**, former tn in the Moscow Oblast of central Russia, a suburb of Moscow. In the 1930's it was fused with Perovo (q.v.). Originally (from the early 16th cent.) an estate of the Counts Sheremetev, it has an 18th-cent. summer residence (now a museum) with a palatial manor house, a park, and a church.

**Küssnacht**, vil. of Switzerland, 7 m. NE. of Luzern, at the N. end of Lake Luzern. Near K. Win Tell (q.v.) is said to have escaped Gessler, the tyrannical Austrian bailiff of Uri, whom he then shot dead with his cross-bow.

**Kustanay**: 1. Oblast (prov.) of the Kazakh S.S.R. of the Soviet Union. Cereals are cultivated extensively N. of the Kartaly-Akmolinsk railway. Pop. 560,000.

2. Tn and cap. of the oblast. An agric. centre. Pop. 60,000.

**Kustendil**, see **KYUSTENDIL**.

**Kustendje**, see **TOMI**.

**Kustenji**, see **CONSTANTA**.

**Küstenland** (coast-land), former prov. of Austria-Hungary at the head of the Adriatic, which embraced Görz-Gradišca, Istria, and Trieste (qq.v.). It is now divided between Italy and Yugoslavia.

**Küstrin**, or **Kostrzyn**, tn in Zielona Góra (q.v.) prov., Poland, at the confluence of the R.s Oder and Warta (qq.v.), about 50 m. E. of Berlin. The old tn was within the strong fortifications of the circle of Königsberg-in-der-Neumark, in the dist. of Frankfurt, Prussia, while its suburbs were on the l. b. of the Oder and the r. b. of the Warta. About 1250 a tn was erected on the site of K., formerly a fishing vil. From 1535 till 1571 it was the

residence of the margrave of Brandenburg-Küstrin. Frederick the Great, as crown prince, was imprisoned at K. by his father; after the Seven Years War he was responsible for rebuilding the tn. During the Second World War K. was an important Ger. stronghold; it was captured by the Russians under Zhukov in Mar. 1945. For an account of the campaign, in which K. was razed almost to the ground, see EASTERN FRONT, or RUSSO-GERMAN CAMPAIGNS IN SECOND WORLD WAR. Pre-war pop., 23,700; 1946 pop. about 650.

**Kut al Amara**, tn in the *liwa* or prov. of Kut in Iraq, situated on the Tigris, 32° N. lat., 47° E. long., some 200 m. below Bagdad. Pop. (tn) 14,000; prov. 180,100. It was the scene of the only protracted siege (except that of Przemyśl) in the First World War. In this historic siege a Brit. force, reduced during the siege from 15,000 to less than 7000, under the command of Maj.-Gen. Sir Charles Townshend, surrendered to the Turks on 29 April 1916, after holding out for 143 days. Townshend's troops formed part of a small Brit. expeditionary force commanded by Gen. Sir John Nixon, which had rashly proceeded some 200 m. up-country in the hope of achieving some spectacular success to counteract the Gallipoli failure. K. was occupied by Brit. forces on 29 Sept. 1915, and Townshend was then ordered by Nixon to march on Bagdad. He attacked Ctesiphon (q.v.) on 22 Nov. but was heavily defeated with the loss of over 4000 men of his div., and then fell back on Kut, which the Turks at once surrounded and invested. Reinforcements were ordered from India, and Russian forces pressed along the Hamadan road through Persia to his relief. A Brit. relief force, which made great efforts to pierce the powerful Turkish line at Sannaiyat, 16 m. E. of K., was repulsed. By April 1916 Townshend's force was in dire straits, only scanty food supplies reaching him by aeroplane, while by now the full weight of the Turkish Gallipoli armies was being used against Mesopotamia and Armenia. The fall of K. enabled the Turks to concentrate practically their whole strength against the Russians in Armenia, besides involving repercussions throughout the Middle E. damaging to Brit. prestige. Of 2680 Brit. non-commissioned officers and privates taken at K., 1306 d. and 449 were never traced, so that over 65 per cent of them perished. K. was again in Brit. possession in 1917 when it was taken by Sir Stanley Maude, together with 1730 prisoners, including 4 Ger. regimental commanders. The responsibility for the K. capitulation is not easy to assign; the popular press for long spoke of Townshend as the hero of K., but in official circles he was strongly criticised. His force, however, was quite inadequate to the task laid upon it by higher authority, being indeed less than one-fifth the size of that of Gen. Maude. See C. W. S. Sandes, *In Kut in Captivity*, 1919; Sir C. Townshend, *My Campaign in Mesopotamia*, 1920; Sir A.

Wilson, *Loyalties: Mesopotamia, 1914-1947*, 1931.

**Kütahya**, anct *Cotiaesum*, tn of Asiatic Turkey, in the ll of the same name. There are sev. Christian churches, and a large anct fortress. Carpets and pottery are made, and meerschaum is found near by. Pop. 19,500 (tn), 419,000 (ll).

**Kutaisi**, tn in Transcaucasia, the industrial and cultural centre of W. Georgia, on R. Rioni. It has engineering (mining equipment, lorries), textile, and food industries, and a hydro-electric station. There are a theatre (founded 1861) and medieval architectural monuments. K. was founded in antiquity, and since the 8th cent. has been almost continuously cap. of W. Georgia (see IMERETIA); it became Russian in 1810, and is the cap. of K. prov. and (1951-3) oblast (abolished). Pop. (1956) 114,000 (c. 1914, 57,000; 1926, 48,000; 1939, 81,000), mostly Georgians.

**Kutch**, see Cutch.

**Kutenai Language**, see NORTH AMERICAN NATIVE LANGUAGES, *Pacific Areas*.

**Kutná Hora** (Ger. *Kuttenberg*), Czechoslovak tn in the region of Prague (q.v.). It has a 13th-cent. castle, and tobacco and sugar industries. Pop. 12,200.

**Kutno**, tn of Poland, in Łódź prov., 33 m. N. of Łódź (q.v.). There was severe fighting near by during the Ger. invasion of Poland at the beginning of the Second World War. The dist. has lignite mines, and there are engineering, soap, cement, sugar, and flour industries. Pop. 21,000.

**Kuttenberg**, see KUTNÁ HORA.

**Kutuzov**, Mikhail Ilarionovich (1745-1813), Russian field-marshal. He commanded the Russian forces in the Russo-Turkish war of 1811 and in the Patriotic war against Napoleon in 1812-13. He surrendered Moscow but later drove Napoleon from Russia. K. was disliked by Alexander I but extremely popular in the country.

**Kuurne**, tn in the prov. of W. Flanders, Belgium, situated on the R. Lys, 2 m. N. of Courtrai, engaged in agriculture, cultivation, and retting of flax and manuf. of lace. Pop. 10,000.

**Kuwait**, or *Kuweit*, see KOWEIT.

**Kuwana**, industrial city of Mienken, Japan, situated at the mouth of R. Nagara, 14 m. SW. of Nagoya. It produces woollen and chemical textiles, chemicals, fertiliser, and cast iron. Pop. 59,000.

**Kuybyshev** (until 1935 *Samara*): 1. Oblast in the E. of European Russia, situated largely on the flat l. b. of the middle Volga, in the Black Earth belt. It has large oil, natural gas, oil shale, phosphorite, and sulphur deposits. There are engineering, metal-working, oil, and food industries; wheat and sunflowers are grown, and there is cattle and sheep breeding (local breeds). A powerful hydro-electric station, the largest in Europe (2,100,000 kw.), was built 1950-6. The prin. tns are K. and Syzran'. The area was annexed by Muscovy in 1552 as part of the Kazan' Khanate. Area 20,800 sq. m.; pop. (without K. city) 1,436,000, mostly Russians (since the 16th cent.).

2. Cap. of the above, directly subordinated to the gov. of the Russian Federal Rep. It is a major industrial centre with large engineering industries (machine tools, automobile and tractor parts, boilers, cables, precision instruments, equipment for food, light, chemical, and shipbuilding industries) as well as oil-processing, saw-milling, food, and light industries. It is also an important transportation centre on the Volga and the Moscow-Siberia railway. There are sev. higher education establs., and a theatre (founded 1851). Founded in 1886 as a fortress, K. became a tn in 1888, prov. cap. in 1851, and the seat of the anti-Bolshevik Committee of Members of the Constituent Assembly (see CONSTITUENT ASSEMBLY) in 1918, and of many Soviet gov. depts and foreign diplomatic missions during the Second World War. Industrial development dates from the late 19th cent., when Samara became an important centre of the flour-milling and grain trade; the metal-working industry dates from the First World War. Rapid industrial expansion took place in the 1930's, and particularly during the Second World War when many factories were evacuated to K. from W. parts of the country. The building of the K. hydro-electric station further enhanced the tn's industrial eminence. The univ., founded 1918, was abolished in 1927. Pop. (1956) 760,000 (second on the Volga and seventh in U.S.S.R.; c. 1914, 146,000; 1920, 176,000; 1939, 390,000).

Kuyper, or Kuiper, Abraham (1837-1920), Dutch theologian and politician; violently opposed 'modernism' and defended Calvinism. He was elected to Parliament (1874-7). K. founded the Free Univ. of Amsterdam (1880) and Reformed Free Churches (1886). After allying the orthodox Protestants and the Catholic party, he became Prime Minister (1901-5). His works include the editing of the *Encyclopaedia Sacrae Theologiae*, 1898-1901, and of *Joannis à Lasco Opera*, 1866. *Lectures on Calvinism*, 1898, *The Incarnation; Socialism and Christianity*, and *The South African Crisis*.

Kuznetsk Basin (abbrev. Kuzbas), coal-mining basin in the Kemerovo oblast of S. Siberia, the largest in the U.S.S.R. and one of the largest in the world. It lies between the 2 ranges which branch off N. and NW. from the highlands of N. Altai—the Kuznetsk Alatau in the E. and the Salair range in the W.—and is traversed by the R. Tom'. The area of the coal-bearing deposits is 10,000 sq. m., the whole industrial area of the K. B. 27,000 sq. m. The coal deposits of the K. B. are estimated at 450,000,000,000 tons, and there are also iron ore deposits in Shoria (see SHORIANS) and non-ferrous metals in the Salair range. Iron smelting in the K. B. was first introduced by the Russians in 1697, and lead and silver smelting was begun in the 1780's. Coal deposits were found in 1721, and first used for iron smelting in 1827; industrial coal-mining began in 1851 and was stimulated by the construction of the Trans-Siberian

Railway and the First World War. Great industrial development began in 1930 when the K. B. became a part of the Ural-Kuznetsk combine (q.v.); large iron and steel, zinc, and chemical plants and power stations were built in the 1930's, and the K. B. became the second coal-supplier of the country, next to Donbas. During the Second World War the K. B. was the second industrial base of the nation's war effort (after the Urals); old industries were greatly expanded and new ones (aluminium, engineering) developed. Since the war industrial expansion has continued, the iron and steel industry being gradually based on the Shorian and nearby Khakas ores instead of the Ural. See also KEMEROVO (1).

Kvaran, Einar H. (1859-1938), Icelandic journalist, publicist, poet, and novelist. After 4 years at the univ. of Copenhagen he went to Canada, where he was for years editor of various Icelandic newspapers before returning to Iceland. Anglo-Saxon culture became his life's ideal, and his influence upon the Icelandic people during his lifetime was felt in every sphere. With Prof. Haraldur Nielsson (q.v.) he introduced spiritualism into Iceland, their interest in the subject having been aroused by Myers's *Human Personality*. Their co-operation was close, and soon Björn Jónsson (q.v.) joined them. Under the leadership of these men the movement in Iceland became rationalistic and investigatory and had a strong influence upon religious thought. K.'s poetry is small in bulk, but of a high quality; his novels and short stories, animated by his lofty ideals, still enjoy great popularity.

Kvarner, Bay of (It. Quarnero), bay at the head of the Adriatic Sea, between the peninsula of Istria (q.v.) and the main Croatian coast. Rijeka (q.v.) stands on it, and it contains the is. of Krk and Cres (q.v.).

Kwakwaka, N. Amer. Indian tribe of the Wakashan linguistic family. They live on the NW. coast of America and have become famous for their institution of the Potlatch (q.v.). To-day they number about 2000, living on and near Vancouver Is. They have been described at length in many works by F. Boas (q.v.); see also C. S. Ford, *Smoke from their Fires*, 1941.

Kwala-Lumpur, see KUALA LUMPUR.

Kwangchow, Chinese name for Canton (q.v.), the port and cap of Kwangtung.

Kwangchowwan, or Tsamkong, Chinese port situated on a bay in the Leichow Peninsula, S. China. It was leased to France in 1898-9, but returned to China after the Second World War. A railway from Litang in Kwangsi to K. was built in 1955 (207 m.), thus linking the port with the main network of Chinese railways. Area 190 sq. m.; pop. 206,300.

Kwang-hsu, Emperor of China (1875-1908), b. 1871. Although he was nominally the ruler, the empress dowager Tze-hsi really had the power, and constituted herself regent, after having succeeded in putting him on the throne. In 1898, although she had retired from power, she

compelled him to issue an edict again making her regent, and this influence she exercised until the end of his reign.

**Kwango**, *see* CONGO.

**Kwangsi**, inland prov. of China, bounded on the N. by Kweichow, on the SE. by Kwantung, and on the S. by Indo-China. It is almost entirely in the basin of the Sikiang, the main stream of which traverses the centre of the prov. from W. to E. The surface is mountainous, and valuable timber is obtained, and cinnamon of excellent quality. Silver, gold, copper, lead, tin, and coal are all mined, the latter especially in the country round Po-se.

and Tungkiang. There are great facilities for internal navigation and coasting trade. Kwangchow (Canton) is the cap. Its ports include Pakhoi and Samshui. Fruits, grains, vegetables, tea, copper, mercury, coal and other minerals, indigo, cassia, and betel are produced, and silk, embroidery, and lacquered wares manu. There are fishing and salt industries. Since 1951, sugar and paper factories have been built. K. was occupied together with much other Chinese ter. by the Japanese in 1937, but in 1945 the prov. reverted to China. Area 82,565 sq. m.; pop. 34,770,059.



E.N.A.

THE KWEI RIVER, KWANGSI

A group of limestone peaks which lie between Kweilin and Yangso.

The chief articles of commerce are timber, indigo, sugar, and tea. The prov. has 4 railways leading to Hunan, Kwantung, Kweichow, and Indo-China. The last 3 were built by the People's Gov. Nanning on the West R. is the present cap. (the old cap. was Kweilin). Area 84,894 sq. m.; pop. 19,560,822 (1954).

The prov. was invaded and occupied by the Japanese in 1944. On 31 Jan. 1940 the Japanese opened an offensive from Nanning to the NE. and NW. and took Pinyang, 25 m. NE. of Nanning. A Chinese counter-offensive was launched on 12 Feb. and after hard fighting, with heavy casualties on both sides, the Japanese evacuated Nanning (18 Mar.).

**Kwantung**, maritime prov. of SE. China, bounded S. and E. by the China Sea. It includes Hainan Is. The chief riv., Chukiang, or Pearl R., is formed of 3 branches, Sikiang (the largest), Pekiang,

**Kwantung**, name given by the Japanese to the ter. of S. Manchuria at the S. end of the Liaotung Peninsula, seized by Japan after the 'Mukden incident' on 18 Sept. 1931. It was returned to China in 1945 and, as before 1931, is now part of Liaoning Prov. It has an area of 1438 sq. m. and a total pop. (i.e. including the S. Manchuria railway zone) of 656,700. There are valuable agric. and fishing industries, and salt is mined. Its main tn, Dairen (q.v.), and Port Arthur (q.v.) are Chinese navy bases.

**Kwanza**, *see* COANZA.

**Kweichow**, interior prov. of China, bounded on the S. by Kwangsi, on the E. by Hunan, and on the N. by Szechwan. It is mostly a mountainous region, and the chief riv. is the Wu, a trib. of the Yangtse. The climate is overcast most of the year and unhealthy. Wheat and maize are the prin. crops, with tea and



tobacco, but the agric. products of the prov. are limited, its chief wealth lying in its minerals. Iron is extracted in the valley of the Wu, which is also rich in coal, and copper is obtained in the vicinity of Kanchui. There is also a considerable amount of mercury, which was formerly a prin. article of commerce; and gold, silver, tin, and lead exist. The prov. is also noted for its horses. Kweiyang (q.v.) is the cap. Area 68,139 sq. m.; pop. 15,037,310 (1954), including a considerable number of national minorities, chiefly the Miao and the Puyi.

**Kweihwa**, see HUEHOT.

**Kwellin**, Chinese city in the prov. of Kwangsi, on the R. Kwei and the Hsiang-Kwei railway. During the Second World War it was cap. of Kwangsi and the mid-way air station between Hong Kong and Chungking. The pop. increased from 50,000 to half a million between 1936 and 1943. The city wall is built of white stone, and the neighbouring scenery is said to be the most beautiful in China. One of its numerous stalactite grottoes served as an air-raid shelter for 100,000 persons, as well as housing a cinema and a school. Among K.'s products are rice, paper, vegetable oil, and cinnamon.

**Kweiyang**, cap. of the prov. Kweichow, China, lies near a coal dist., and from its position is of great importance commercially. Road communication with neighbouring provs. was greatly developed during the war, and a univ. and sev. colleges have been founded in K. A railway to Chungking was built in 1957; another is connected with Kwangsi. Pop. 250,000.

**Kwen Lun**, see KUN LUN.

**Kwidzyn** (Ger. *Marienwerder*), tn of Poland, in Gdańsk prov., near the Vistula (q.v.), 45 m. SSE. of Gdańsk (q.v.). It was formerly in E. Prussia (q.v.). In the Middle Ages the tn was a stronghold of the Teutonic Knights (q.v.), and it was the seat of the bishops of Pomerania (q.v.), 1254-1526. Until 1919 it was the cap. of the prov. of W. Prussia (q.v.). In the Second World War there was very severe damage. There is a fine Gothic church and a castle. Pop. 8000. See K. H. Clasen, *Marienburg und Marienwerder*, 1931.

**Kwinana**, tn of W. Australia, 14 m. S. of Fremantle in an industrial area, with an oil refinery, a steel mill, a cement factory, and harbour installations on Cockburn Sound. Pop. 3800.

**Kyakhta**, tn in Siberia, in the Buryat-Mongolian Autonomous Rep., 144 m. S. of Ulan-Ude, and close to the Mongolian frontier. Founded 1728 as a suburb of Troitskosavsk, which also was later named K.; centre of Russo-Chinese tea trade till 1860's. Pop. (1936) 12,000.

**Kyanite** (Cyanite, or Disthene) ( $\text{Al}_2\text{O}_3 \cdot \text{SiO}_2$ ), mineral having the same formula as andalusite, that crystallises in thin, blue or white anorthic blades showing perfect cleavage. Lustre vitreous; birefringence strong; fracture rather fibrous. It is remarkable in exhibiting varying degrees of hardness in different directions

—the lowest being 4½ and the highest 7 on Mohs's scale. K. is insoluble in acids. When heated to a high temp., it is converted into a mass of sillimanite fibres. Perfect, well-coloured specimens are sometimes cut for use in jewellery. The mineral is a product of the thermal metamorphism of arenaceous rocks. Notable localities: St Gothard, Tyrol, Brazil, and India.

**Kyaukpnyu**, seaport of Arakan, Lower Burma, at the N. end of Razmri Is. K. is the chief tn of the dist. of the same name, and has a small trade with Calcutta and Rangoon. It has an Intermediate College and a State Training Institute for Teachers. The harbour extends for many miles, but is rendered dangerous by numerous sunken rocks. Pop. (dist.) 252,000.

**Kyaukse**, northernmost dist. of the Moultila div., Upper Burma, is irrigated by numerous rivs. and canals, and the chief product is rice. K. tn, the H.Q. of the dist., is on the r. b. of the Zawgyi R. Pop. (dist.) 152,500; (tn) 5900.

**Kyd**, or **Kid**, **Thomas** (1558-94), dramatist, b. London, son of a scrivener. He was a schoolfellow of Edmund Spenser at Merchant Taylors', but little is known of his life. He became one of the Bohemian literary set of his day, was a close associate of Marlowe in his last years, and like him was charged with atheism; after being imprisoned for this he spent his last years in poverty. His Senecan play *The Spanish Tragedy*, which piles horror on horror, is well constructed and was extremely popular in its day, being trans. into Dutch and German. His *Pompey the Great*, 1594, is a trans. from the French. He probably wrote *Solyman and Perseda*, 1592, and may also have been the author of an old lost play on the subject of Hamlet which served as a basis for Shakespeare's great tragedy. His works were ed., with a life, by F. S. Boas, 1901; see also R. S. Forsythe, *Notes on the Spanish Tragedy*, 1926, and bibliography by S. A. Tannenbaum, 1941.

**Kyendwin**, see CHINDWIN.

**Kyffhäuser**, name of a double line of hills in central Germany, separated from the Harz Mts (q.v.) by the Goldene Aue. The highest point is Kälpenburg (1560 ft). There are 2 ruined castles. According to legend, Frederick Barbarossa (see FREDERICK I) sleeps in a limestone cave in the hills and will one day arise to restore the greatness of Germany. See F. Brather, *Die Kyffhäuser und seine Umgebung*, 1925.

**Kyles of Bute**, straits between the Argyll coast (Cowal dist.) and the is. of Bute, Scotland, noted for their beautiful scenery. They are about 15 m. long.

**Kyōsai**, **Sho-fu** (1831-89), Jap. artist, b. Koga. He became famous during the great revolution of 1867 for his political caricatures. On more than one occasion these brilliant drawings led to his imprisonment by the party whose susceptibilities he had offended. K. illustrated many books, including *Fehon Takakagami*, 1870, and *Kyōsai Gwaden*, 1887.

AD 18), famous Rom. jurist, whose father figured in the conspiracy against Julius Caesar, and after the battle of Philippi committed suicide. He entered public life at an early age as a member of the plebeian nobility, and before long rose to the praetorship. He was an ardent republican, and for that reason failed to find favour with Augustus, who did not promote him to the consulate in the year he should have held office. It is probable that the *Labone insaniore* of Horace was levelled against the jurist in order to please the emperor. L. was the founder of the so-called Proculian school of jurisprudence. See CAPITO.

**Laberius, Decimus** (c. 106-43 BC), Rom. knight, who, with his contemporary Publius Syrus gave literary shape to the mime, or burlesque drama. Fragments of his work survive, and justify the opinion of Horace who admired him for having lent style to a normally indecent form. In 46 BC, at the command of Julius Caesar, L. appeared in one of his own mimes in a public contest with Syrus. Though he dared on this occasion to point his satire at the dictator, he came to no worse harm than to be declared the loser. See O. Ribbeck, *Comicorum Romanorum Fragmenta* (3rd ed.), 1898, and W. Beare, *The Roman Stage*, 1950.

**Labiatas**, family of dicotyledonous herbs and shrubs, about 3000 species, cosmopolitan in distribution. Stems are usually square, leaves opposite or whorled, flowers in the leaf axils or bracts, single, double, or in clusters, with 5-lobed or 2-lipped calyx, 4- or 5-lobed corolla, 4 stamens, superior carpels and fruit of 4 one-seeded nutlets. Many yield aromatic oils. Chief genera are *Ajuga*, *Anisomelos*, *Ballota*, *Calamintha*, *Cedronella*, *Coleus*, *Collinsia*, *Cunila*, *Dracocephalum*, *Elsholtzia*, *Hyssopus*, *Lamium*, *Lavandula*, *Leonotis*, *Melissa*, *Mentha*, *Monarda*, *Nepeta*, *Origanum*, *Phlomis*, *Rosmarinus*, *Salvia*, *Stachys*, *Teucrium*, *Thymus*, *Tinnea*.

**Labiche, Eugène Marin** (1815-88), Fr. dramatist. In 1838 he pub. a novel entitled *La Clef des champs*, and in the same year he made a double venture on the stage with a drama, *L'Avocat Loubet*, and a vaudeville, *Monsieur de Coislin ou l'homme infiniment poli*, both of which found popular favour. In 1851 appeared his farce, *Le Chapeau de paille d'Italie*, a fine specimen of Fr. imbroglia, followed by *Embrassons-nous*, *Folle-ville*, 1857, *Le Voyage de M. Perrichon*, 1860, *La Cigale chez les fourmis*, 1876, and others, his complete plays numbering over 100. See preface to the *Théâtre complet*, 1878, by Émile Augier, and P. Soupault, *E. Labiche, sa vie et son œuvre*, 1945.

**Labienus, Titus Atius**, Rom. general, tribune of the plebs, 63 BC. He distinguished himself as Caesar's legate in the Gallic war, twice defeating the Treviri (54 BC), and taking part in the campaign against Vercingetorix. At the outbreak of the civil war he sided with Pompey; went to Africa after Pharsalus (48); and finally fought against Caesar

(q.v.) at Munda in Spain, where his troops were routed and he was killed (45 BC).

**Lablache, Luigi** (1794-1858), Franco-It. operatic singer, b. Naples, where he studied at the Conservatorium under Gentili and Valesi. At the age of 18 he had developed a magnificent bass voice, and made his first appearance at Naples in Fioravanti's opera, *La Molinara*. In 1817 he was engaged at the Scala of Milan, and in 1824 he appeared in Vienna. He appeared with great success in London and Paris in 1830, being engaged to appear annually in both these cities. He taught Queen Victoria singing for a time. On the operatic stage he was equally successful in tragic and comic parts, among his prin. roles being Leporello in *Don Giovanni* and Don Bartolo in *Il Barbiere*.

**La Boétie, Étienne de** (1530-63), Fr. writer, b. Sarlat, Dordogne, and friend of Montaigne. His *Discours de la servitude volontaire*, or *Contr'un*, 1548, a youthful criticism of tyrants, was written under the influence of revolutionary ideas which were current in the early part of the 16th cent. In his *Essays*, Montaigne, after La B.'s death, tried to protect the memory of his friend as a model and peace-loving citizen, but even he implies that La B. was at heart a republican: 'Eust mieux aymé estre nay à Venise qu'à Sarlat.'

**Labor, Department of (U.S.A.)**, was created as a separate executive dept in 1913. It has jurisdiction over matters relating to the welfare of wage earners, improving their working conditions, and advancing their opportunities for profitable employment. It also directs investigation of matters pertaining to child welfare. The prin. bureaux and divisions of the dept are Bureau of Labor Statistics, which collects statistics on labour, earnings, hours of labour, and moral welfare of wage earners; Children's Bureau, which investigates and reports on child life and welfare, including infantile mortality, juvenile courts, employment, etc., and administers the child-welfare services under the Social Security Act of 1935 and the provisions of the Fair Labor Standards Act of 1938 relating to child labour; Div. of Labor Standards, which develops labour standards in industrial practice, labour law, and labour legislation; Public Contracts Div., which administers the Walsh-Healey Act requiring gov. supply contracts to contain maximum hour, minimum wage, child labour, safety, and health stipulations; United States Conciliation Service, which deals with industrial controversies; Wage and Hour Div., which enforces the wage and hour provisions of the Fair Labor Standards Act of 1938: its duty is to see that employers engaged in inter-state commerce or producing goods for inter-state commerce conform to the wage and hour standards; and Women's Bureau, which is charged with formulating standards and policies for promoting the welfare of wage-earning women, increasing their efficiency, improving their working conditions, and

advancing their opportunities for profitable employment.

**Labor Day**, see **LABOUR DAY**.

**Laborde, H. F. de**, see **DELABORDE**.

**Labori, Fernand Gustave Gaston** (1860-1917), Fr. advocate, b. Rheims, where he was educ. Subsequently he spent 2 years in Germany and England. He was called to the Bar in 1884 and won celebrity in many famous cases, notably in his defence of Zola, accused of libelling the Fr. executive and army; in the Dreyfus appeal; and in the Humbert case (1903). He pub. the *Répertoire encyclopédique du droit français*, and was editor-in-chief of the *Grande Revue*.

**Labouchère, Henry Dupré** (1831-1912), journalist and politician, b. London. Educ. at Eton, he entered the diplomatic service in 1854, being attached to the embassies of St Petersburg and Dresden. In 1864 he entered Parliament on the Liberal side, being one of Gladstone's most faithful supporters, and from 1867 to 1868 represented Middx; he was a member for Northampton from 1880 to 1905, when he retired. He was editor and proprietor of *Truth*, a paper founded in 1876, successful in the exposure of scandals of various natures. Also part proprietor of the *Daily News*, he contributed a series of letters to that paper during the siege of Paris in the Franco-Ger. war, as 'A Besieged Resident.' In 1896 was a member of the Jameson Raid Commission. See lives by A. L. Thorold, 1913, and E. Jerningham, 1913; also H. Pearson, *Labby*, (new ed.), 1946.

**Labour**. In economics L. is one of the 'factors' of production, the others being, in Mill's words, 'appropriate natural objects.' In short, L. is the motive power of man upon the objects of the physical world, for, as Mill points out, all the L. of the world could not produce one particle of matter; e.g. to weave broad-cloth is but to rearrange in a peculiar manner the particles of wool. Jevons's thesis of the 'period of production' (on which see R. G. Hawtrey's *Capital and Employment*, 1937) implies that 'land and labour,' or, more comprehensively, human effort and natural resources, are the only original factors of production. L. is said to be either productive or unproductive. By the latter is meant that L. which does not augment the material wealth of the community. The former is further subdivided into directly and indirectly productive L., the former comprising all that manual work which is especially employed on material processes, the latter 'nervous' or mental work. In common parlance the term has been generally applied to manual work, a limitation of meaning which, taken with the fact that the Socialist schools of thought ordinarily use the term worker as a synonym for manual worker, has not only resulted in bringing into sharp political juxtaposition those who work with their hands and those who do not, but has also fostered a very general sympathy with the former on the ground that though they are the physical producers

of utilities, they receive often a small share of them. The orthodox economist regards unproductive L. as L. that fails to render the community richer in material products, and makes it poorer by all that is consumed by the labourers while so employed; but, as Mill points out, unproductive L. may well be as useful as productive, or more so, even in point of permanent advantage, for not all utility can be measured by material embodiment.

Economically the most striking feature of L. is that as society progresses it becomes increasingly divided, a fact which really renders the actual operation of a worker on a single process a less valuable factor in the final result (see also **DIVISION OF LABOUR**). Div. of L., or specialisation, makes necessary co-ordination of the specialists. There are two kinds of co-ordination of L.: (a) simple, or that which takes place when sev. persons assist each other in the same employment, and (b) complex, when they assist each other in different employments, e.g. one set of persons may sow cotton-seed, another pack it, and others manuf. it into cloth.

As regards technological progress in relation to L., it is to be noted that, for any product, as cost declines and output is increased, demand must eventually become inelastic, and cost-saving inventions tend ultimately to displace L. Only if the new process offers such attractive prospects of gain that it invites speculative borrowing and supplements the resources of the investment market with a creation of credit will additional employment be given. The adaptability of L. to new occupations and its willingness to move into them depend on circumstances. But experience in wartime shows that an enormous amount of skilled and semi-skilled L. is rapidly made available for the purposes of war industries; and even under more normal conditions every new industry and in great part any rapidly expanding industry must be supplied with L. by transfer from other industries. Mobility of L. is a necessary condition of a free and progressive economy. One of the unexpectedly difficult problems of a condition of full employment, as experience since the end of the Second World War shows, is that it renders L. immobile.

**Labour, Ministry of** (since 1939, the M. of L. and National Service, with H.Q. at 8 St James's Square, London, S.W.1), set up in 1916 to deal with questions of L. administration, wages disputes, and other matters hitherto under the direction of the L. Dept of the Board of Trade (q.v.). The ministry has general responsibility for manpower questions. Through the Employment Exchanges, it provides an employment service for assisting those who are looking for work, and for helping to meet employers' L. requirements. A settlement service, including facilities for industrial rehabilitation and vocational training, is provided for disabled persons. The ministry is responsible for the administration of the Factories Acts which contain provisions for the safety, health, and welfare

of work-people in establs. covered by the Acts. In the industrial relations field the ministry provides a conciliation service to help in the prevention and settlement of trade disputes, and is responsible for the appointment of arbitrators, Courts of Inquiry, etc., under the Industrial Courts Act, 1919, and the Conciliation Acts, 1894; it is also concerned with the regulation of wages and conditions of employment under the Wages Council Acts and the Catering Wages Act. Under the National Service Acts, the ministry arranges for the registration, medical examination, deferment, and call-up of men for military service. The ministry maintains close relations with the International L. Organisation (q.v.) and other international organisations with an interest in L. matters. It is also responsible for the Youth Employment Service, which provides for the vocational guidance and placing in employment of young persons.

**Labour, Wages and Hours of.** A study of wages and L. requires examination not only of *money* wages but also of *real* wages, i.e. the commodities and services that money wages buy; this is a measure of the standard of living of the wage-earners. If prices generally were stable the two would coincide. Over the cents. there have been great fluctuations in prices and in the value of money, and movements in money wages are no necessary guide to movements in real wages. Money wages are trans. into real wages by adjustment for movements in prices. For various periods there have been studies of money wages and prices by social scientists—Thorold Rogers (q.v.), Beveridge (q.v.), and many others. Their work was collated in 1956 and added to by original research by two economists, Phelps Brown and Hopkins (*see below*). They constructed a continuous series of index numbers for the wages of building craftsmen in the S. of England from 1264 to 1954, and a parallel series for the prices of a composite unit of food, drink, clothing, fuel, and light, and were thus able to derive the trend of real wages.

Their findings revealed the following broad picture. Real wages rose by about a half between 1264 and 1500. By 1580 they had fallen back to the 1264 level. From 1580 to 1625 they fell still further, and then rose until by 1750 they were again at the 1264 level. From 1750 they again fell, and by 1800 were back at the 1625 level. From 1800 to 1900 they rose spectacularly  $3\frac{1}{2}$  times in consequence of the industrial and social revolutions of the times. There was then little change until the outbreak of the First World War in 1914, during which they fell by 40 per cent, but recovered to the pre-war level by 1919. After that they began to soar again, and, despite the trade depression and heavy unemployment of the early 1930's, they had increased by two-thirds by 1939. The Second World War reduced them again—by about a quarter—but they recovered part of the lost ground by 1947. After that they fell again some-

what but by 1954 were again approaching the 1947 level.

These figures referred to only one, although a major, trade, and to one part, although an important part, of the country, and they measured real wages in terms of a composite unit of consumable goods. They could not cover the whole range of commodities produced throughout the 7 cents. Nevertheless they were probably a rough guide to the trend of real wages, and therefore to the standard of living of a large part of the wage-earners over sev. cents.

Greater details of the trend in money and real wages since before the Second World War are available from surveys made by the Ministry of L. These have estab. that the average weekly earnings of all workers in 1938 were £2 13s. 3d., and by 1956 they had increased to £9 17s. 9d. This means an increase from 1938 to 1956 of 270 per cent.

The earnings of men only (aged 21 and over) increased during this period from £3 9s. to £11 15s. 4d., or 240 per cent, and of women only (aged 18 and over) from £1 12s. 6d. to £5 19s. 9d., or nearly 270 per cent. The increase in the earnings of young people were even more spectacular. Those of youths and boys rose from £1 6s. to £5 0s. 6d., or 285 per cent, and of girls from 18s. to £3 18s. 4d., or 323 per cent.

These increased earnings reflect the combined effects of changes in 6 main factors: first, rates of wages; second, the number of hours worked per week; third, the proportion of hours paid for on overtime, week-end, night-shift, and other special rates; fourth, the amount of work paid by results (a system which generally produced greater effort of output than payment by time); fifth, the proportion of men, women, boys, and girls employed; and sixth, the proportion of workers employed in different industries.

The average *wage rates* for a full ordinary week's work, excluding overtime, were 165 per cent higher in 1956 than in 1938.

The average *hours worked* in all industries were little changed over this period. In 1938 they were 46·5 for all workers; in 1956, 46·7. Soon after the Second World War they were 45 hours, but they rose gradually in the following years. The hours of men only rose slightly from 47·7 to 48·6; women's hours fell from 43·5 to 41·5; boys' from 46·2 to 45·0; and girls' from 44·6 to 42·4. (For the hist. of hours of work *see* FACTORY LEGISLATION.)

The proportion of men, women, boys, and girls changed markedly between 1938 and 1956. The proportion of men has, since 1947, been much higher than in 1938, but the proportion of juvenile L. was less than half what it was in 1938. The increase in the proportion of men and the great decrease in the proportion of juveniles was due mainly to the rise in the school-leaving age.

*See also* LABOUR DISPUTES.

*See* E. H. Phelps Brown and Sheila V.

Hopkins, 'Seven Centuries of Building Wages,' in *Economica*, 1955, and 'Seven Centuries of the Prices of Consumables, Compared with Builders' Wage Rates,' in *Economica*, 1956; also *Ministry of Labour Gazette*.

**Labour, or Farm, Colonies** existed, mainly on the Continent, for the purpose of reforming or punishing vagrants. The more important L. colonies on the Continent were those in the Netherlands, Belgium, Germany, and Switzerland. In Holland L. colonies were divided into (a) free colonies for indigent persons, and (b) beggar colonies for the repression of mendicancy. The free colonies were not successful, as the original entrants remained in the colony and few fresh cases were received. The beggar colonies were penal rather than reformatory, and a severe discipline was maintained by the society.

In Belgium, under the law of 27 Nov. 1891, state institutions of 2 kinds were estab.: (1) *Dépôts de Mendicité*, and (2) *Maisons de Refuge*. The former were intended for the reception of able-bodied professional beggars, vagrants, and certain other classes of people, such as inebriates and persons convicted of immoral offences. The intention of the Act was to treat habitual vagrants and beggars not as criminals requiring punishment, but as persons requiring treatment on account of their mode of life. The purpose of a *Maison de Refuge* was to receive men too old or infirm to work, or who through want of work or misfortune had been driven to begging or vagrancy. It was in most respects similar to the Eng. workhouse.

In Germany there were some 30 L. colonies. There was no compulsion to remain in the colony, and admission was voluntary. The bulk of the inmates appear to have been unemployed workmen and tramps. Habitual vagrants and persons who neglected to maintain themselves were far more effectively dealt with in the *Arbeitshäuser* which corresponded to the forced L. farms of Switzerland and the compulsory L. colonies of Belgium and the Netherlands. They were penal in character and intended for the detention of persons after imprisonment for certain specified offences.

In Switzerland from 1906 there were both voluntary and compulsory L. colonies. The voluntary numbered only three and were managed by philanthropic societies. Nearly every canton had a compulsory colony or forced L. farm, managed by a cantonal council, the federal gov. neither taking any share in the management nor inspecting the farms.

In England the closest approach to the continental forced L. colonies was the old houses of correction. In more recent times there have been certain institutions estab. by charitable agencies for vagrants. The largest of these latter institutions was the farm colony of the Salvation Army at Hadleigh in Essex, with accommodation for sev. hundred inmates. The Eng. colonies differed from the continental in

that there was no power of compulsory detention. The Majority Report of the Poor Law Commission recommended the institution of L. penal colonies for such persons as were unemployed and vagrants who accepted relief while refusing to fulfil the conditions of work attached to such assistance. The recommendation was not proceeded with.

See L. Twining, *Workhouses and Women's Work*, 1858; C. J. Ribton Turner, *History of Vagrants and Vagrancy*, 1887; Board of Trade Report, 1904; W. H. Daulson, *Vagrancy Problem*, 1910; Report of the Departmental Committee on Vagrancy, 1926, and *Minutes of Evidence taken before the Committee, and Appendices*; J. Flynt, *Tramping with Tramps*, 1900; Beston-Thomas, *Report on the Methods of dealing with Vagrancy in Switzerland*; J. S. Hoyland, *Digging with the Unemployed*, 1934.

**Labour Day**, legal holiday in all the states and ters. of Canada and the U.S.A. which is observed on the first Monday in Sept. It is observed by labour processions and organisations which parade the streets and hold meetings, and all banks and gov. offices are closed. Outside the U.S.A., Canada, and Italy L. D., or the day generally fixed on by all Socialist and Labour organisations for a public holiday, is celebrated on 1 May. In New Zealand L. D. is observed on the third Monday in Oct.

**Labour Disputes** between employers and workers arise chiefly from dissatisfaction of the workers with their conditions of employment, or from dissatisfaction of the employers with their work-people. A dispute originating in one trade sometimes spreads to others whose members have no grievance, but who 'come out' in sympathy with their fellows. When stoppage of work is on the initiative of the workers a strike results, but where the employers close their works the stoppage is called a 'lock-out.' Disputes are settled by arbitration, when a third party is mutually appointed to decide the issue, or by conciliation (q.v.), where discussion under an impartial chairman takes place, or by the final defeat through lack of resources of one of the disputants. The gov. sometimes intervenes where the stoppage threatens to endanger civil welfare. During the First World War the outstanding dispute was that of the Clydeside workers, who demanded an increase in wages because of the increased cost of living. Gov. intervention took place, and the increase was secured. Thereafter munition workers were controlled by the Munitions of War Act of 1915, and compulsory arbitration was applied to all future disputes. Under the chairmanship of J. H. Whitley, an attempt was made to reorganise the relationship between employer and workers by co-operation through Standing Joint Industrial Councils. The scheme is known as 'Whitleyism,' and has since been found to be inadequate. In 1921 a great lock-out of miners ended in defeat, though the famous Sankey Coal Commission was

appointed. Its recommendations, which included nationalisation of coal-mines, were favourable to the miners, but were not acted upon by the gov. until after the Second World War. The strike of 1926 is dealt with in detail under STRIKE, THE GENERAL (1926). The outcome of this strike was the passing of the Trade Disputes and Trade Unions Act, 1927, which



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#### THE GENERAL STRIKE, 1926

Police escort a petrol lorry through a road in Southwark, London.

declared general and sympathetic strikes unlawful, restricted picketing, and made the law courts the arbiters of legality or illegality of strike activities. The 'contracting-in clause' stipulated that only those trade unionists might contribute to the political funds of the unions (that is to the fund of the Labour party) who declared in writing their willingness to be levied for that purpose. The T.U.C. repeatedly pressed for the amendment of this Act, but in 1940 Neville Chamberlain (the Prime Minister) pointed out to a T.U.C. deputation that it would be impracticable to introduce amending legislation during war-time. The Labour Gov. which came into power in 1945 passed a 2-clause Act repealing the Act of 1927,

which received the royal assent on 22 May 1946. 'Unofficial' strikes became prevalent in 1943, but though they were not important individually they seemed to indicate that something was amiss with industrial relations. Some of these strikes were organised for political reasons and in order to impede the nation's war effort. But considering the difficulties that had arisen from the transference of labour and the entry into industry of new people, who were unaccustomed to discipline and to trade union negotiations, it was remarkable that there had been so few disputes up to that time. But public confidence in the ultimate issue of the war undoubtedly emboldened some to launch unofficial strikes. In 1944 there was discontent in the minefields, whose workers exposed themselves to the charge of placing their own sectional interests before the national welfare. It was always difficult to decide whether, for securing the smooth working of industry in war-time, it was necessary to introduce military control or whether the joint industrial relations machinery could be relied upon. The General Council of the T.U.C. issued a statement in 1944 that unauthorised stoppages of work had gravely impeded the preparations for the attack on Europe and if continued might produce a national disaster and imperil victory. As a precaution against the outbreak of industrial trouble the Minister of Labour, after consultation with the T.U.C. and the Brit. Employers' Confederation, issued a defence regulation giving him strong powers for dealing with persons responsible for inciting strikes or lock-outs which interfered with essential services. This was aimed, however, solely at promoters of so-called 'unofficial' strikes. A petty dispute in 1945 at Birkenhead docks led to an extended strike of dock workers in most of the large ports. This strike was entirely unofficial; 40,000 were on strike and 20,000 soldiers had taken their places. The refusal of the Ministry of Labour to intervene until the men went back to work proved effective, and the men returned to work, accepting, after prolonged negotiations, terms very little higher than those offered *ab initio* by the employers. After the war there were numerous demands for wage increases, sometimes leading to strikes, official or unofficial, and mostly the latter. Most unrest prevailed among the dockers, and in 1948 an unofficial strike began in the Port of London owing to the suspension of 11 men after a dispute over payment for handling 'dirty cargo.' During the fortnight of the strike in the London docks service men unloaded food-stuffs. This had its sequel in 1949 when 8000 men of the Port of London went on strike in a fight which was represented by their unofficial leaders as one to 'resist the employment of blackleg labour.' The Labour minister, in the House of Commons, described the dockers' claim that the stoppage was in fact a lock-out as nothing but a Communist manoeuvre, and emphasised that the men were acting in

breach of their agreements. The continuance of the strike, and an increase in the numbers of men involved, forced the gov. to employ troops for loading and unloading cargo, and the king declared a state of emergency. The course of L. D. cannot be understood without reference to the state of the labour market. Overfull employment greatly increased the workers' bargaining power. Strikes, often unofficial but sometimes official, were called for trivial reasons or because of inter-union rivalry (e.g. a strike in a shipyard to decide which of 2 unions' members should bore a hole). Wages were forced up faster than output, so that inflation was intensified. *See also INDUSTRIAL RELATIONS and TRADE UNIONS.*

*United States of America.* Labour disputes in America are examined by a Board of Mediation formed under an Act of Congress passed in 1926. Individual unions appear to have freedom of action, and most disputes are settled by the states concerned. Between 1921 and 1928 stoppages involving 4,500,000 workers were settled by the Congress Board of Mediation, under whose powers the secretary of labour is authorised either to mediate himself or to appoint special commissioners. Mediation boards have also been set up by individual states, and disputes are usually settled either by conciliation or voluntary arbitration. In the 5-year period 1933-40 strikes averaged about 2875 annually. But when the threat of war became obvious, the shipbuilding and other strikes, which occurred about the time of the presidential election, were soon settled and the return of Roosevelt for his third term indicated that Amer. labour appreciated the fact that it was the Democratic Gov. that had guaranteed collective bargaining and the minimum wage and fixed a maximum work week of 40 hours.

The best known example of compulsory arbitration is the system in New Zealand, where such a scheme has existed since 1897. Recourse must be had to a specially appointed conciliation board under an impartial chairman, who, on failure to reach an agreement, refers the dispute to the courts. New S. Wales and Victoria have similar systems. *See G. D. H. Cole, A Short History of the British Working-class Movement (3 vols.), 1927, and Margaret Cole, Makers of the Labour Movement, 1948.*

**Labour Exchanges, see EMPLOYMENT EXCHANGES.**

**Labour Legislation** is the outcome of the wish to regulate conditions of contract between employers and workers and to secure for the worker 'reasonable' standards of remuneration, health, and safety. Until the advent of machine production in the 18th cent. there were protective regulations enforced by the craft guilds (q.v.) in co-operation with the gov. Machinery needed plentiful labour, and workers combined to demand better terms. In 1799 the Combination Act threatened with imprisonment workers who combined to increase wages. Lord

Shaftesbury (q.v.) took up the cause of children in factories, and in 1842 procured a Bill to abolish female and child labour in mines. In 1867 the Employers and Workmen Act removed concerted stoppages of work from the list of criminal actions.

In the early years of the 20th cent. the chief measures passed affecting labour questions were the Workmen's Compensation (q.v.) Acts; the Coal Mines Eight Hours Act of 1908, which ended a long struggle by the miners; the Trade Boards Act of 1909, resulting from agitation to combat sweated labour; the Labour Exchanges Act, the precursor of Unemployment Insurance; the Coal Mines Regulation Act; the National Insurance Act; and the Shops Acts. The First World War period brought problems, to meet which the Munitions of War Act, 1915, made arbitration compulsory in the settlement of industrial disputes. The Act was repealed in 1918. In an attempt to keep pace with the increased cost of living, the Trade Boards Act of 1918 extended the Act of 1909, bringing many millions of workers into the protective scope of a legalised minimum wage. In the same year the Wages (Temporary Regulation) Act was passed to cope with the situation created by the change from war to peace conditions. The Act was passed originally for 6 months, but certain sections were continued under the Industrial Courts Act of 1919, which stabilised the existing rates of wages as a minimum until 1920. Many of the conventions drafted by the International Labour Conference of the League of Nations dealt with legislation to govern hours of labour. A recommendation to adopt universally a 48-hr week was not ratified by the Brit. Gov. on account of its excessive scope. The miners' dispute of 1920 resulted in the passing of the Emergency Powers Act, which enabled the gov. to take necessary steps to enforce peace and maintenance of essential supplies and transport. The Act was applied during the disputes of 1921, 1926, and 1949. Following the General Strike (*see STRIKE, THE GENERAL*) the gov. repealed the Seven Hours Act of 1919, and the Trade Disputes and Trade Unions Act of 1927 proclaimed illegal general strikes, sympathetic strikes, and most forms of 'picketing'. Labour conditions in the 2 decades following the First World War seriously deteriorated in the N. of England in what became scheduled as special areas; and towards the close of 1934 an Act provided for the economic development and social improvement of these distressed areas. Training schemes were also part of the general plans for recovery. But it was the conditions imposed by the Second World War that solved that problem.

The war closed the ranks of the people and, while many trades—engineers, miners, shop assistants, etc.—demanded and obtained higher rates of pay in 1939-1940 as a consequence of the increased cost of living, the peace-time advantages in hours and other conditions were sacrificed to some extent to the national needs.

In 1940 (after the Fr. resistance had collapsed) the Employers' Confederation and T.U.C. General Council agreed to the minister of labour's appeal to suspend rules and regulations so as to throw their whole force into the national effort. But the National Union of Railwaymen in 1940 demanded the repeal of the Trade Disputes Act of 1927, and the T.U.C. later urged the removal of restrictions imposed by the Act on unions. The gov., however, considered it impracticable to amend legislation in war-time and the Act was

organisation to be found in modern times in many countries which, very broadly speaking, represents, or claims to represent, the interests and aspirations of Labour (i.e. the working class) as against the interests and ideals of Capital (i.e. the employing, or master, class). The L. P. in Great Britain, which must be distinguished from the Independent L. P. (the I.L.P.) (q.v.), is a purely Socialist body, consisting of trade unions, co-operative societies, and various Socialist bodies banded together to secure political repre-



*Hulton Picture Library*

LORD SHAFTESBURY SEES CHILDREN WORKING IN COAL-MINES, 1840

not repealed until 1946, under the Labour Gov. After the Second World War, strikes provoked by inter-union rivalries (e.g. on demarcation rules) and the 'closed shop,' and the increasing public criticism of monopoly, focused attention on the restrictive practices of the trade unions. But both major political parties showed no disposition to tackle such a politically difficult problem. See also FACTORY LEGISLATION; SHOPS ACTS; TRADE UNIONS; WORKMEN'S COMPENSATION. See H. Slesser and A. Henderson, *Industrial Law*, 1924; G. D. H. Cole, *A Short History of the British Working-class Movement* (3 vols.), 1927, and *Organised Labour*, 1928; *International Labour Review* (monthly), Geneva; *Legislative Series of the International Labour Office*, Geneva. See also the official pubs. of Eng. and U.S. Govs.

**Labour Office, International**, see INTERNATIONAL LABOUR ORGANISATION.

**Labour Party**, The, name of a political

sentation. The first secretary of the L. P. was James Ramsay MacDonald (q.v.). For the first 6 years of its existence the L. P. was known as the Labour Representation Committee (the L.R.C.). When formed in 1900 the membership was 375,000, and it succeeded in returning 2 members to the Commons in that year. As a parl. force it dates from the 1906 election, when its membership was 998,000, and when out of 50 parl. candidates 29 were elected. The L. P. strongly supported the First World War, and its then leader, Arthur Henderson (q.v.), with 2 other L. P. representatives, was included in the Coalition Gov. of 1915, and, when the new Coalition Gov. of 1916 was formed, Henderson continued in the Cabinet until Aug. 1917, when he resigned over the proposed Stockholm Socialist International Conference. At the conclusion of the armistice the L. P. withdrew its support from the gov. Up to 1918 it had been practically a federation of trade



unions and Socialist societies, but the war had changed the national outlook, and in order to keep pace with the extended organisation of the trade unions, as well as to widen its field of recruitment, the L. P. revised its constitution, admitting individual members of all social grades. It increased its membership so considerably as a result that by 1924 it had achieved a brief period in office, with Ramsay MacDonald as Prime Minister. Dependence upon Liberal support, which was never reliable, caused its defeat after 10 months as a gov. Meanwhile the party had begun to realise the significance of municipal elections, and an attack was accordingly made upon municipal seats throughout the country, especially in mining and industrial areas, with marked success. Its membership in 1920 was well over 4,000,000, though this figure fell to 1,900,000 during the trade slump which followed. In 1926 the General Strike (q.v.) severely tested the organisation of the L. P., and indeed the whole Labour movement was shaken. The storm, however, was weathered so successfully that the party found itself again in office in 1929, when it secured the return of 287 members. Ramsay MacDonald again became Prime Minister in a minority gov. and continued in office even though, in Aug. 1931, the Labour Gov. resigned and was replaced by a National Gov. Labour M.P.s next took office during the Second World War, in Churchill's Coalition Gov., 1940-5.

It has been said that the L. P. is more of a 'class' party than the Liberal party was under Gladstone or Asquith. This may be said to be true in the sense that to-day (1958) it is estimated that a majority of what can loosely be called 'working class' voters generally support the L. P., and that the party gets only a low percentage of support from the middle and upper classes; but it remains equally true that a fairly large percentage of working-class voters regularly vote Conservative and that the L. P. relies increasingly on the middle classes, both for votes and for leaders. The rise of the L. P. shows that it is possible to achieve a large measure of support even with a largely hostile press. But the L. P. has in the past made up for this deficiency by maintaining close contacts with the trade unions, which, in their turn, have sev. complete series of national and local organisations. The representative character of the L. P. to-day is shown by the fact that a great variety of interests are represented—engineers, the medical and legal professions, teachers, journalists, farmers, the fighting services—though by far the largest group of members, comprising more than all the others combined, is still the 'workers' group.' The rise of the L. P. since the Second World War has been phenomenal, and between 1945 and 1951 the legislation passed by the Labour govts. accomplished what was virtually a social revolution by peaceful parl. means. In 1935 the L. P. had approximately 154 representatives in the Commons as against 387 Conservative

members; in 1945 the positions were reversed, the L. P. having 393 members and the Conservative party and associates only 213, the Labour majority in the House in 1945 being about 146. The L. P. won the 1950 election with 315 members to the Conservatives' 298 but were defeated in 1951 by a Conservative majority of about 18 seats. In the 1955 general election the L. P. representation fell to 277 seats. C. R. Attlee (q.v.) was leader of the party, 1935-55, the present leader being Hugh Gaitskell (q.v.). See SOCIALISM, etc.

See G. D. H. Cole, *The World of Labour*, 1919, and *Short History of the British Working-class Movement* (vol. III), 1927; C. R. Attlee, *Labour Party in Perspective*, 1937; Margaret Cole, *Makers of the Labour Movement*, 1948; F. Williams, *Fifty Years' March of the Labour Party*, 1949; R. Jenkins, *Pursuit of Progress*, 1953.

**Labours, Catherine** (1806-75), b. Côte d'Or, a Sister of Charity of St Vincent de Paul. As a result of one of her visions the first 'miraculous medal' was struck. Beatified, 1933.

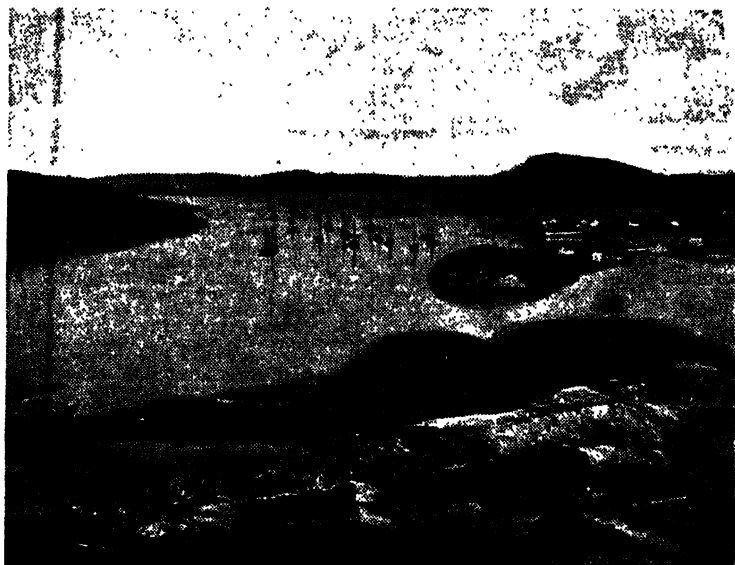
**Labourers, Statute of.** The Black Death caused a great dearth of agric. labour and wages went up, with the result that the Ordinance (see LEGISLATION AND LEGISLATIVE PROCESSES) of Labourers was issued in 1349 and re-enacted in 1351 as the S. of L., with the object of securing an adequate supply of field labour at the wages current prior to the plague. It provided that able-bodied persons should work in their own dist. at the accustomed rate of wages, while those who gave aims to 'sturdy beggars' should be punished with imprisonment. The consequence, however, was the rise of a class of really free labourers, in spite of the low rate of wages.

**La Bouverie**, tn in the prov. of Hainaut, Belgium, 5 m. SW. of Mons. It has important coal-mines and manuf. of Davy lamps. Pop. 7600.

**Labrador**, part of the prov. of Newfoundland, Canada, forming the most easterly part of the N. American continent and extending from Blanc Sablon at the SW. entrance of the straits of Belle Isle to Cape Chidley at the E. entrance of Hudson Strait. The name is also applied to the peninsula of which L. proper forms merely a coastal strip (1100 m. in length), with an area of about 110,000 sq. m. The greater part of the peninsula, representing the territory of Ungava (351,780 sq. m.), was annexed by Quebec in 1912 under the Quebec Boundaries Extension Act. By the decision of the Privy Council, 1 Mar. 1927, settling the boundary between Canada and Newfoundland in L., the Atlantic watershed of the L. peninsula, including the basin of the Hamilton or Grand R., was awarded to Newfoundland. The accession of Newfoundland to the dominion of Canada, 31 Mar. 1949, brought all L. automatically under the confederation, but the dependency or coastal strip of L., or L. proper, is still administered from St John's, Newfoundland, so far as prov. relations are concerned.

L., regarded as part of Vinland or Wine-land (q.v.), was probably visited by the Vikings in the 10th or 11th cents. Many traces of stone houses and stone-protected tombs, such as the Norsemen built and which the indigenous Eskimo never did, have been found on the L. coast. According to Norse sagas the voyages of Bishop Eric Gnuþsson and his sons in the early 12th cent. concern L., but these are all songs glorifying the deeds of chiefs rather than satisfactory evidence of visits to the coast of what may have been L. It is

ordered Cortereal and Fernandez to follow Cabot's route and claim all that Cabot had found (including L.) as part of the legitimate property of Portugal. They sailed in 1501, but explored only the E. Greenland coast, which was named 'Labrador,' presumably after João Fernandez the *lavrador*. However this may be, Greenland for many years afterwards was called on the maps of the period Terra Labrador. Cortereal, however, on a second voyage a year later, evidently sailed further S., and all that is known of this



*High Commissioner for Canada*

#### LABRADOR: INDIAN HARBOUR

commonly supposed that John Cabot sev. cents. later sighted the coast and even visited it, though there exist no real records of his voyages. Cortereal, the Portuguese navigator, visited the country only 12 years after Cabot's voyage of 1498. Cortereal states that in Hamilton Inlet he found an old Venetian sword, some gold earrings, and other 'small truck' which Cabot had very probably traded with the Indians. The story goes that the voyage of João Fernandez (a *lavrador* or yeoman farmer) of the Azores, who signed on as pilot for Cabot, so interested King Mañuel on his return that the king granted letters patent for a Portuguese voyage—the letters, however, being granted to Gaspar Cortereal, who had greater social standing than Fernandez. It is assumed that the king

voyage accords well with the description of S. L., which for many years appeared on maps as Terra Corterealis. Jacques Cartier, some 40 years later, cruised the W. coast of Newfoundland and the L. shore of the gulf in the search for the NW. passage. After this L. (with the rest of explored Canada) fell under Fr. rule, but the peninsula was ceded to England in 1763 by the treaty of Paris.

Little is known about the geology of L. The archæan bedrocks belong to the continental foundation of N. America known as the 'basement complex,' composed mostly of metamorphic rocks and containing no fossil remains of animals or plants. This is overlaid at some places with a veneer of limestones, sandstones, and shales, some of which bear fossils of some of the earliest known organisms;

but over 75 per cent of the L. peninsula this veneer has been eaten away by rain and ice, so that the anct and remarkably flat surface has been restored. The basement rocks were originally molten, but froze into crystalline masses containing granite, lava, limestone, syenite, diorite, and other minerals. Gabbro (q.v.), as dark as basalt, dominates the is. cliffs and mainland mts all round Nain; but these high lands are bare of soil and vegetation. Most of the gabbro is a beautiful variety of felspar, called labradorite, one of the abundant constituents of the world's crust. In Square Is. and on Mt Pikey there are other considerable masses of the mineral. L. is very mountainous and very rugged, the mts becoming highest in the N. It has many short, rapid rvs., Hamilton R., on which are the magnificent Grand Falls, being the most notable. A recent power survey here indicates that the minimum hydro-electric energy available is 2,500,000 h.p. The coast is rocky, broken up with narrow inlets, and fringed with numerous small is.

The flora and fauna are alike varied. Among the prin. trees are white birch, larch (or tamarack), reaching 60 ft, balsam fir, black spruce—the best all-round tree in L. and growing to 70 ft—balsam poplar, willow, alder, and mountain ash. Plants include reindeer, sphagnum, and other mosses, besides gentians, bluebells, wild rosemary, sundew, and also numerous edible wild fruits. The husky dog, most useful to traders, the caribou, and the reindeer are among the chief animals. Others are wolf, otter, beaver, musk-rat, black and polar bear, white fox, karkajou or wolverine, lynx, mink, marten, and weasel or ermine. Among the birds are numerous water-fowl, which, however, migrate in winter. There are also Arctic tern, golden plover, snow bunting, snipe, puffin, phalarope, merganser, and savannah sparrow, besides such birds of prey as hawk, eagle, owl, gull, gannet, shrike, and goshawk. L. is noted for its fisheries. The waters near the coast are the resort of countless schools of cod. There are also valuable herring, trout, and salmon fisheries. The cod fishery employs about 1000 men and 30 vessels from Newfoundland. Other fish are many types of whale, halibut—a halibut bank covering hundreds of miles was discovered in recent years all along the middle L. coast—haddock, lung-fish, trout, and lump-fish. The rvs. are stocked with salmon. The record cod caught was 102 lb. in weight and 5½ ft long. There are numerous seal, the chief kinds being the harp and hood seal.

The fisheries are an important industry. Other industries are fur trapping (beaver, otter, mink, seal, etc.) and agriculture on a minor scale, but showing signs of improvement. At the headwaters of the Hamilton R. an investigation is being carried out on an area geologically of the same age as part of the Lake Superior iron ore where the geological formations are structurally similar. Many deposits of high-grade iron ore are known to exist

in the area and preliminary estimates indicate a minimum of a million tons of iron ore per vertical foot.

The climate is rigorous and the indigenous peoples suffered much from hardship and disease before the advent of the Moravian missions and the medical mission of Sir Wilfred Grenfell. There are Moravian mission stations at Nain, Okkak, Hopedale, Hebron, and other spots, which have been taken over by the Hudson's Bay Co. The labours of Sir Wilfred Grenfell in establishing hospitals, encouraging agriculture, and improving education in Newfoundland for the benefit of the fishermen and other inhab. of L. have been the dominant feature in the life of modern L. (see GRENFELL, SIR WILFRED). Goose Bay in Hamilton Inlet has a pop. of 2800 and Happy Valley 1136. The total pop. is estimated at 8500, and is made up of Indians, Eskimoes, and some whites. There is a model settlement in the basin of St Mary's R., with a cottage hospital, boarding school, gardens, water reservoir, and splendid salmon-fishing. At the beginning of the 18th cent. the Eskimoes were estimated at 30,000. When the English took possession there were only 5000-8000. Now, nearly 200 years later, the only Eskimoes left on the whole coast are about a thousand, all on the reservations of the Moravian Brethren (q.v.) whose work began with the mission of the Christian Society of the Unitas Fratrum. To-day the hospitable centres of the Unitas Fratrum are in every way oases in the desert to the traveller (Grenfell). In 1921 a new church was built at Nain to celebrate the 150th anniversary of the Moravian Mission in L. See W. G. Gosling, *Labrador*, 1910; W. Grenfell, *Labrador: the Country and the People*, 1922, and *The Romance of Labrador*, 1934; V. Tanner, *The Geography, Life, and Customs of Newfoundland-Labrador* (a systematic survey of the E. part of the L. peninsula), 1947.

**Labrador Retriever**, powerful game-dog, having a wide head with a square muzzle, ears set high and hanging close to the cheeks, wide deep chest, muscular body, and tapering tail. The coat is short and thick, generally black, though a yellow sub-variety exists. Brought from Labrador over a cent. ago, its value as a gun-dog was quickly appreciated, and it is now the most popular of all retrievers, being strong, easily trained, and of exceptional intelligence. The curly and flat-coated types were formed by crossing the Labrador with other breeds.

**Labradorite**, soda-lime felspar of the plagioclase group, mostly bluish and greenish in colour, abundant in St Paul's Is., Labrador. Used in jewellery.

**Labrit**, see ALBRET.

**Labrunie, Gérard**, see NERVAL, GÉRARD DE.

**La Bruyère, Jean de (1645-96)**, Fr. writer and moralist, b. Paris, his father being controller-general of finance to the *hôtel de ville*. He was educ. at the univ. of Orleans, and called to the Bar in 1673.

He abandoned this for a post in the revenue dept at Caen, which he sold in 1686. He was then introduced by Bossuet to the household of the great Condé, to whose grandson, Henri Jules de Bourbon, he became tutor, and passed the remainder of his life in the household of the prince or at court. This gave him the occasion to exercise his great gift of observation, and ample material for his masterpiece *Les Caractères*, a penetrating study of human behaviour by a series of pen-portraits of typical figures. The first ed. of the *Caractères* appeared in 1688, and from the 4th to the 9th ed. he augmented and improved this work. His work deserves a high place in Fr. literature: he excels in bringing out individual and picturesque traits of the innumerable persons portrayed, and always finds the significant gesture which reveals the whole character. The *Caractères* are remarkable also for La B.'s sympathy with the suffering of the poor; although he is a pessimist, there is no systematic doctrine in his work. The style too is remarkable for its rich vocabulary and the infinite variety of his turns of phrase. Many famous men and women figure amongst the *Caractères*, including Corneille, Fontenelle and, Renseraide, and immediately after its pub. a vol. of keys was circulated. See E. Fournier, *La Comédie de La Bruyère*, 1866; M. Lange, *La Bruyère critique des conditions et des institutions sociales*, 1909; and studies by A. Gide (in *Divers*), 1932, and G. Michaut, 1936.

**Labuan**, is. 6 m. off the NW. coast of Borneo, with an area of 35 sq. m. Ceded to Britain in 1846 by the Sultan of Brunei; from 1890 to 1906 it was governed by the Brit. N. Borneo Co. It was then annexed to the Straits Settlements and became a separate settlement in 1912. The Japanese occupied it in 1942, and it was liberated by the Australian 9th Div. in June 1945. It is now part of the Brit. colony of N. Borneo. It has a fine harbour, which affords good anchorage for ships, and possesses extensive coal-beds and a railway. It is flat and thickly wooded and possesses a good supply of water. L. is an active market for the products of the neighbouring is. of Borneo and the Sulu archipelago—edible birds'-nests, camphor, india-rubber, wax, sago, hides, etc. The chief product is sago-flour. The is. is connected with Singapore, Hong Kong, and Jesselton by telegraph cables and by frequent steamship service. There is an international airport. Pop. (1938) 8600 (Malays 5200; Chinese 3000).

**Laburnum**, family Leguminosae, genus of 3 deciduous shrubs or trees: *L. anagyroides*, Common L., or Golden Chain, and *L. alpinum*, Scotch L., and varieties, of S. Europe being grown for their yellow racemous flowers in spring. *Laburno-cytisus* × *adamii* is a curious graft hybrid of *Cytisus purpureus* × *L. anagyroides* that produces purple-pink as well as yellow flowers. L.s are poisonous in all parts.

**Labyrinth**, word applied in Gk legend to the so-called Palace of Minos at Knossos (q.v.), supposed to have been designed by

Daedalus (q.v.). It is also used by Herodotus (ii. 148) to describe a large and partly subterranean complex of buildings at Crocodilopolis (afterwards Arsinoë) dating from the late 3rd millennium BC. Modern L.s or mazes in gardening include the celebrated maze at Hampton Court (q.v.); and the word is now used generally of any complicated network of winding passages.



LABURNUM

**Labyrinthodonts**, large and varied group of primitive Palaeozoic amphibians, with characteristic 'arch vertebrae' and labyrinthine teeth, probably descended from crossopterygian fishes (q.v.). Many were large in size, with heavy flattened skulls, and a straddling gait. They range from Devonian to Triassic, but are dominantly Carboniferous and Permian in age.

**Lac**, see LAKH.

**Lac**, insect Lucifer, one of the *Coccidae*, which produces L. dye and L. resin, excreting the latter to form a crust on twigs and leaves. The dye is similar to that produced by the cochineal insect. The insect is cultivated in India. See DYE and RESIN.

**Lacaille, Nicolas Louis de** (1713–62), Fr. astronomer, was b. Rumigny in the Ardennes. In 1739 he remeasured the Fr. arc of the meridian, an operation lasting 2 years. For this service he was admitted to the Academy, and obtained the mathematical professorship at Mazarin College. In 1750 he undertook a successful astronomical expedition to the Cape of Good Hope to determine the lunar and solar parallaxes. He wrote *Coelum australe stelliferum*, *Astronomiae Fundamenta*, 1757, and *Tabulae Solares*, 1758, etc.

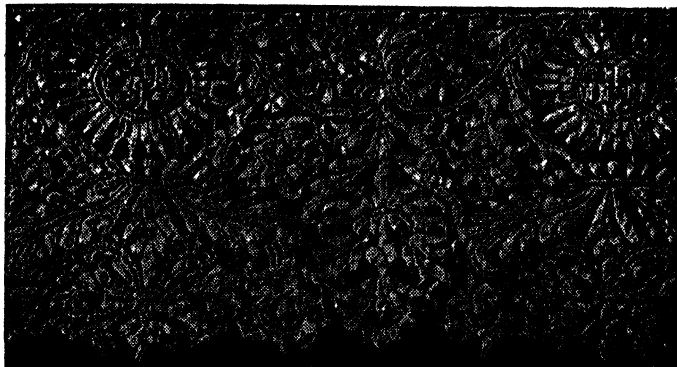
**La Calprenède**, Gautier de Costes, Seigneur de (1614–63), Fr. novelist and dramatist, b. near Cahors, Lot, prominent among Fr. writers of the 17th cent. He wrote sev. long romances: *Cassandre*, 1642–50, *Cléopâtre*, 1648, *Faramond*, 1661, and sev. plays including *Bérénice*, *Jeune d'Angleterre*, and *Le Comte d'Essex*, 1658. His works are set in a pseudo-historical

background, his heroes and heroines being mere idealisations of the lords and ladies he had met in the Parisian salons. Like all such prolix romances those of La C. are unreadable now, though his reputation endured till the 18th cent. See E. A. Scillière, *Le Romancier du Grand Condé*, 1921, and S. Pitou, *La Calprenède's 'Faramond'*, 1938.

La Carlota, see CARLOTA, LA.

Laccadive Islands, group of 14 low coral is. in the Indian Ocean (9 inhabited), 200 m. W. of the Malabar coast, included in the Madras state. A coral reef extends round each of the is. and forms a lagoon where coir (coco-nut fibre), the staple product, is soaked. Vasco da Gama discovered the group in 1499.

cloths, eccles. vestments, and jabots. The art of L. making spread through Italy into France, where Alençon became the chief centre (see Despierres, *Histoire du Point d'Alençon*, 1886). A robe of Alençon L. made for the Empress Eugénie took 36 highly skilled L. makers 1½ years to make. It is now in the museum at St Gall. Colbert, a king's minister in the 17th cent., is considered the founder of the Fr. L. industry. One of the earliest pattern books was pub. in 1527 by Pierre Quintz of Cologne, under the title of *New and Subtle Book concerning the Art and Science of Embroidery, Fringes, Tapestry making, as well as other Crafts done with the Needle. Point de France* was first produced in imitation of the



NEEDLE-POINT LACE: SEVENTEENTH CENTURY

Laccolith, or Laccolite, intrusion of igneous rock between 2 strata. The characteristic shape is that of a plano-convex lens, being flat underneath and arched above. Ls were probably formed by intrusion of molten rock of a fair degree of viscosity, with sufficient internal pressure to cause arching of the superincumbent strata.

Lace, ornamental textile fabric with an openwork pattern produced by means of cotton, linen, silk, nylon, or gold threads. There are three distinct varieties of L., needle-point, pillow, and machine made.

Needle-point or point lace dates from the 16th cent. L. is mentioned in early Eng. documents prior to that date, but it was probably cord or braid twisted or plaited together and used as a strap or tie. Point L. made by the needle is associated with Venice, where the earliest point L. (*Punto in Aria*) was made. The designs used in this kind of L. were generally stiff and geometrical in form. Rose point (*Gros Point de Venise*) dates as far back as 1640, and was done in relief. The main pattern was held together by bridges and bars or ties, while solid knots, stars, and flowers were worked into the design. This kind of L. was used principally for altar

Venetian designs, but later distinctive patterns came to be used in France, Spain, and Flanders. Point L. made in Brussels differed in that the flower or star ornament was made separately and sewn on to the réseau or ground work.

Pillow lace is made by hand with bobbins and thread on a pillow. It is supposed to have been invented by Barbara Uttman of St Annaberg, Saxony, in the mid 16th cent., but it must have been known in Flanders by the end of the 15th cent., according to a picture painted in 1495 by Quentin Matsys. As many as 1000 bobbins may be employed at a time for the more elaborate patterns. Mechlin, Valenciennes, Brussels, Torchon, Honiton, Buckingham, and Bedford are all known for their own kinds of pillow L. A beautiful Honiton flouncing was made for Queen Victoria at a cost of £1000. Irish L. has its own distinctive patterns and Limerick L. is similar to a Belgian type.

Machine-made lace dates from the latter half of the 18th cent., when many attempts were made in Nottingham to manuf. a net on the stocking frame which could be used as a background for pillow L. The net made on this machine was not

Argolis, and terminated southwards in the twin promontories of Taenarum (Cape Matapan) and Malea. In the E. part of the dist. stood Sparta (q.v.) otherwise known as Laedaemon, on the R. Eurotas. Off the coasts of L. there was caught a shell-fish which yielded a purple dye inferior only to that of Tyre (q.v. and see MUREX). In modern Greece L. is a dept with a pop. of 131,000.

2. City in New Hampshire, U.S.A., co. seat of Belknap co., on the Winnepesaukee R., 24 m. N. by E. of Concord. Mt Belknap is 5 m. distant. L. has extensive manufs. of machinery, hosiery, woollen goods, metal products, skis, and boats. It is a resort area. Pop. 14,575.

**Lacordaire, Jean Baptiste Henri Dominique** (1802-81). Fr. preacher, b. Recoy-sur-Ouroe, Côte-d'Or. He was ordained priest in 1827, and was chaplain to a convent and to the Collège Henri IV. He began his Christian 'conferences' at the Collège Stanislas (1834), which paved the way for his eloquent sermons delivered at Notre Dame (1835-6). In 1838 he joined the order of Friars Preachers or Dominicans; was clothed with the habit of that order at the Minerva in Rome, assuming the name Dominique; prepared his *Mémoire pour le rétablissement en France de l'ordre des frères prêcheurs*, 1839; and collected materials for his *Life of St Dominic*, 1841. From 1843 to 1851 he continued his 'conferences' at Notre Dame, his funeral orations being especially famous. But the best of his sermons were his last, delivered at Toulouse in 1854, a series on the Christian life. In 1860 he was elected a member of the Academy, succeeding De Tocqueville. His works include *Considérations sur le système Philosophique de M. de Lamennais*, 1834, *Conférences de Notre Dame de Paris*, 1835-51, *Conférences de Toulouse*, 1854. His complete works were pub. in 1872. See lives by C. de Montalembert, 1862 (Eng. trans. 1863); B. Chocarné, 1866, and J. Honnet; also G. Ledos, *Morceaux choisis et bibliographie de Lacordaire*, 1923.

**Lacquer** and **Lacquering**, originally used to describe the composition used in China, Japan, and other E. countries for the preservation and ornamentation of such substances as metal, wood, leather, etc. The famous lacquerware of the Japanese consists of wood which has been treated with the sap of *Rhus vernicifera*, which provides a very hard, tough, and durable finish of great brilliance and permanence. The process was very tedious, owing to the number of coats of the L. or varnish (q.v.) which were needed to produce the desired degree of finish. In recent times the term L. has ceased to have a precise meaning. The term is sometimes applied to such materials as solutions of shellac and other resins, but in the main is taken to refer to the nitrocellulose finishes. The main ingredients of nitrocellulose finishes are nitrocellulose (or nitro cotton, pyroxylin, or collodion cotton as it is variously known), resin, plasticiser, solvent, and pigment. The nitrocellulose provides a tough, hard film;

resin improves the gloss and adhesion; plasticisers provide flexibility; solvents reduce the viscosity to a point where the L. can be brushed or, more usually, sprayed; whilst the pigment gives colour and opacity. Clear L.s are made in a similar manner except that the pigment is omitted. The resin most frequently employed is ester gum (rosin, esterified with glycerine), but other resins, including the natural resins, can be used. The plasticisers mostly used are dibutyl phthalate, tricresyl phosphate, castor oil, and certain alkylid resins. A very wide range of solvents and partial solvents is used, particularly the esters, ketones, coal-tar hydrocarbons, and the alcohols. The pigments used are similar to those used in paints (q.v.) but owing to the low solids content of nitrocellulose L.s, only the strongest are employed. Ball mills are used for manu.

**Laurette, Jacques de** (1838- ), Fr. novelist and essayist, b. Château de Cormatin in Burgundy, of distinguished literary forbears, and educ. at the Lycée Janson. He studied Eng. literature at Cambridge. His chief novels are *Silbermann*, 1922, an objective study of a Jewish boy in conflict with his Aryan schoolfellows; and *La Bonifas*, 1925, a study in introspective psychology. He shows a preference for solitary, whose psychological constitution he acutely analyses; this is exemplified in his *La Vie inquiète de Jean Hermelin*, his first novel, 1920, and, much later, in *Le Retour de Silbermann*, 1939, a story showing the influence of Gide. Other works: *Les Hauts-Ponts*, a novel in 4 parts, 1932-3; *Quatre nouvelles italiennes* and *L'Âme cachée*, short stories, 1928; *Lettres espagnoles*, 1926; *Les Auteurs étudiés*, essays 1924; *L'Ecrivain public*, 1936; *Libérations*, 1945. He was made a member of the Fr. Academy, 1938. See E. Bendz, *Visages d'écrivains*, 1947.

**Laurette, Jean Charles Dominique de** (1766-1855), Fr. politician and historian, b. Metz. In 1809 he was made prof. of hist. in the Paris Faculté des Lettres; in 1810 censor of the press; in 1811 a member of the Fr. Academy, and in 1816 its president. His works include *Précis historique de la Révolution française*, 1801-1806, *Histoire de France pendant le dix-huitième siècle*, 1808, and *Histoire de France pendant les guerres de religion*, 1814-16.

**Lauroix, Paul** (1806-54), Fr. author, b. Paris. He was a prolific writer, one of his chief works being *Le Moyen Âge et la Renaissance* (produced 1847, with Séré), a book on the manners, customs, and dress of those times. Besides his numerous historical romances, he also pub. elaborate works, *Histoire de la prostitution*, 1851-1852, *Histoire du XVI<sup>e</sup> siècle en France*, 1834-5, and *Histoire politique, anecdotique et populaire de Napoléon III*, 1853-4. He is best known as 'P. L. Jacob, Bibliophile,' a name suggested by his constant interest in libraries. In 1855 he was keeper of the Arsenal Library.

**Lacroma**, small is. off Dubrovnik (q.v.).  
**La Crosse**, city, co. seat of La C. co.,

Wisconsin, U.S.A., on the Mississippi R. (bridged) at the mouths of the La C. and Black R.s, 125 m. WNW. of Madison. It is the shipping, manufacturing, and distributing centre for a rich agric. region. It has lumber-mills, quarries, and manufs. farm implements, machinery, and air-conditioning equipment. La C. is the seat of Viterbo College, and a Wisconsin state college. Pop. 47,500.

**Lacrosse**, national ball game of Canada, derives its name from the resemblance of the curved netted stick, with which the

1881, and inter-varsity matches were instituted in 1903. L. matches were played at the Olympic Games of 1908, 1928, and 1948; teams from the U.S.A. toured Britain in 1948, 1950, and 1954.

The object of the game is the same as that of football and hockey, to score goals. The goals must be at least 90 and not more than 110 yds apart; they are 6 ft by 6 ft, and are set up in the middle of the goal crease, a circle of 3 yds radius marked out with chalk. A net is drawn from the top rail and sides of the goal posts to a point



*Sport and General*

**WOMEN'S LACROSSE AT PARK ROYAL: ENGLAND v. UNITED STATES OF AMERICA**

game is played to a bishop's crosier. The game has its origin in a similar pastime of the N. Amer. Indians, in which whole tribes used to take part. In 1867 Governor Beers suggested the adoption of L. as the national game of Canada, and the National L. Association of Canada was formed; since then the game has flourished greatly in Canada and to a less extent in the U.S.A. L. was first seen in England in 1867. The Eng. L. Union was formed in 1868, but the game was very little played in England until 1902. In that year the Toronto L. Club sent a team over to play the representative clubs of England and Ireland. The club's visit and that of the Ottawa club in 1907 have done a great deal to popularise the game. Matches between the N. and S. of England have been played since 1882 and a co. championship was started in 1905. England played Ireland for the first time in

6 ft behind the middle of the line between the posts. The side boundaries are agreed on by the captains. No spikes may be worn on the shoes. The ball is made of solid indiarubber, and must weigh between  $4\frac{1}{2}$  and 5 oz., and be between  $7\frac{1}{2}$  and 8 in. in circumference. The 'crosse' is a light staff of hickory wood, with the top bent in the form of a hook, from the tip of which a thong is drawn down and fastened to the shaft about 2 ft from the handle. It may be of any length, but must not be broader than 1 ft in any part, and no metal may be used in its manuf. Across this frame is a loose network of gut or rawhide. A team consists of 12 players—a goalkeeper, point, cover-point, third man, right and left defence fields, a centre, right and left attacks, and 3 home fields. Each player, save the goalkeeper, is directly marked by an opponent. The game is opened by the 2 opposing centres

'facing' the ball. In the men's game each centre stands with his left shoulder to his opponent's goal and his crosse held wood downwards on the ground; the ball is placed between the backs of the crosses which are drawn smartly apart along the ground to bring the ball into play. In the women's game, the crosses are held in the air at hip level, parallel to the centre line, wood downwards, with the ball held between them; to bring the ball into play the crosses are drawn up and away from each other. No player may handle the ball save the goalkeeper, and he only when saving a shot. For a foul the player is either suspended until a goal is scored or until the termination of the game, or a 'free position' (a free kick at football) is given. No charging is allowed, but a player may stand in front of an opponent without touching him. If the ball crosses the boundary line it is 'faced' by the 2 nearest players, the rest remaining where they were. There is no 'offside' rule. The ball is carried on the crosse with a peculiar rocking motion, which is only learnt by practice. The men's game is played for 2 periods of 45 min., the women's for 2 periods of 25 min. See M. Boyd, *Playing Lacrosse*, 1950.

**Lactantius, Lucius Caecilius Firmianus** (c. 250-317), Christian writer and teacher of Lat. eloquence, was probably a native of Italy, but studied in Africa. About 301 he settled at Nicomedia at the invitation of Diocletian, and about 13 years later went to Gaul to superintend the education of Crispus, son of Constantine. His chief work is *Divinarum Institutionum Libri VII*. His other works include *De Mortibus Persecutorum*, *De Ira Dei*, and *De Opificio Dei*. The purity of L.'s style is often marred by an inadequate grasp of philosophy and theology. The complete works are printed by S. Brandt and G. von Laubmann in *Corp. Script. Eccl. Lat.*, xix and xxvii, 1890-5. See R. Pichon, *Lactance*, 1901.

**Lacteal**, any one of the lymphatic vessels that take up the chyle absorbed from the mucous membrane of the intestines and carry it to the thoracic duct (q.v.). Chyle, the product of fat-digestion, has a milky-white appearance, and this appearance is communicated to these vessels when full; hence the name.

**Lactic Acid**, molecular formula  $C_3H_5O_3$ , organic acid occurring in sour milk. The names ethyldidenelactic acid and ethylene-lactic acid are sometimes applied to the isomers  $\alpha$ -hydroxypropionic acid and  $\beta$ -hydroxypropionic acid respectively. The former, whose structural formula is  $CH_3\cdot CH(OH)\cdot CO_2H$ , is the one formed by lactic fermentation of sugars, starch, etc., and is more particularly entitled to the name L. A.; the latter,  $CH_3(OH)\cdot CH_2\cdot CO_2H$ , is not formed during lactic fermentation, but behaves in many respects like L. A.; it is otherwise known as hydracrylic acid. There are still 2 more isomers of formula  $C_3H_5O_3$ : sarcosic acid, which occurs in extract of meat, and an acid of similar constitution formed in the lactic fermentation of cane-

sugar; these are mainly to be distinguished by their optical properties. L. A. is a sour, syrupy liquid, miscible with water and alcohol in all proportions. It cannot be distilled, as it decomposes at a moderately high temp. It forms metallic salts, which are known as lactates, some of which are used in mordanting cotton, wool, and calico. L. A. is important in tanning, in medicine, and in the perfume industry. Esters of L. A. are used as plasticisers. It is manuf. by the fermentation of starch, maize, etc., by organisms such as *Bacillus aceti lactici*. The commercial acid contains 80 per cent L. A.

**Lactic Acid Therapy**, system of treating intestinal disorders and general weakness by the administration of sour milk, or of preparations containing lactic acid. The sour milk theory owed its popularity to the writings of Elie Metchnikov of the Pasteur Institute at Paris. Many digestive troubles are due to the action of bacteria in causing putrefaction within the intestines, thus giving rise to changes which in the main are detrimental to health, though some of them undoubtedly assist the absorption of food material. Metchnikov proposed to fight the noxious bacilli with other bacilli whose action is conducive to good health. The precise manner in which the lactic bacillus or its products aids digestion is a matter of doubt, and the treatment cannot be unreservedly recommended in all cases. The marvellous longevity among peoples to whom sour milk is an everyday article of food, and the testimony of many patients who have experimented with the treatment, brought Metchnikov's theories into good repute. Many preparations are now produced from soured skim milk under various trade names. The bacteria concerned are *Lactobacillus acidophilus* and *Bacillus bulgaricus*; they are usually obtained from pure cultures, and are introduced into the skim milk when it has cooled after boiling. The souring is then allowed to go on until the casein in the milk is on the point of coagulation. More recent work does not confirm all of Metchnikov's claims that *Lactobacillus acidophilus* is the only bacterium capable of producing beneficial results, and must be directly introduced into the intestine in specially inoculated soured milk. This is efficacious in curing constipation, diarrhoea, and some other intestinal disorders. See E. Metchnikov, *The Prolongation of Life* (trans.), 1907, and N. Kopelov, *Lactobacillus acidophilus*, 1926.

**Lactose**, or Milk-sugar ( $C_{12}H_{22}O_{11}$ ), sugar found in the milk of all mammals to the extent of about 4 per cent. It may be prepared by separating the casein of milk with rennet, and evaporating the remainder; crystals of L. are formed and may be purified by recrystallising from water. L. is not so sweet as sugar-cane, but is much more easily digested by infants, so that cow's milk adapted for use in babies' feeding bottles is commonly sweetened with it.

**Lacus Verbanus**, see MAGGIORE, LAKE.



**Lacy, Franz Mauritz** (1735-1801), Austrian soldier. *B.* St Petersburg, the son of Peter L. (q.v.), he entered the Austrian service and in 1758 became chief of staff to Daun, directing much of Austrian strategy in the Seven Years War. After peace-time work in army reform L. commanded Austrian troops in the War of the Bavarian Succession, and against the Turks.

**Lacy, Peter, Count** (1678-1751), Irish soldier and Russian field-marshal. *b.* Limerick. He entered the Russian service in 1697, and in 1725 was appointed commander-in-chief in St Petersburg, Ingria, and Novgorod. He took part in the war for the estab. of Augustus of Saxony on the throne of Poland (1733-5), and was made field marshal (1736). The same year he succeeded in reducing Azov, then in the hands of the Turks, and in 1741, being appointed to command against the Swedes in Finland, seized the important Swedish post of Wilmanstrand. L. has been called the 'Prince Eugène of Muscovy.' He did much to reform the Russian Army.

**Ladakh**, mountainous prov. in the valley of the upper Indus lying about 13,000 ft above sea level, between the Karakorum and the Himalayas. It now forms part of Kashmir, but was originally a div. of the Tibetan empire. The cap. is Leh. The chief riv. is the Indus.

**Ladas:** 1. Famous Gk runner in the time of Alexander the Great, native of Laconia, who gained the victory at Olympia in the *dolichos* (long course of 20 stades). A monument was put up to his memory on the banks of the Eurotas, and there was also a fine statue of him by Myron (c. 430 BC) in the temple of Apollo Lycius at Argos.

2. Native of Aegium in Achaea, who gained a victory in the foot race at Olympia in 280 BC.

**Ladd, George Trumbull** (1842-1921), Amer. philosopher, *b.* Painesville, Ohio. He held the chair of philosophy in Bowdoin College in 1879, and was Clark prof. of metaphysics and moral philosophy at Yale, 1881-1901, becoming prof. emeritus in 1905. Among his works are *Elements of Physiological Psychology*, 1887, *Primer of Psychology*, 1894, *Psychology, Descriptive and Explanatory*, 1894, *Philosophy of the Mind*, 1895, *A Theory of Reality*, 1899, *Philosophy of Religion*, 1905, and *Knowledge, Life, and Reality*, 1909.

**Ladders**, see SCALING LADDERS.

**Ladin**, or **Ladino:** 1. Romance dialect known as Romansch (q.v.) or Rumanish; it is found in its purest form in the Grisons, Switzerland, particularly in the Engadine and neighbouring valleys. It took its origin from the 'lingua rustica Romana' of the later empire. It has little literature, but among the writers in it have been Johann von Travers, Conrad von Flugi, and S. F. Caderes. An excellent L. dictionary by Zaccaria Pallioppi appeared in 1895. See C. Battisti, *Popoli e lingue nell'Alto Adige*, 1931.

2. The vernacular speech of Jews of Sp. and Portuguese origin, also known as

Judezmo or Judaeo-Spanish, which is mainly based on Old Castilian.

3. The Old Castilian language.

**Lading**, Bill of, see BILL OF LADING.

**Ladismith**, tn of Cape Prov., S. Africa, in the Little Karroo, 1767 ft above sea level, in the midst of fine mt scenery. It is a farm centre, producing grain, fruit, feathers, and brandy. Like Ladysmith (q.v.) L. was named in honour of the wife of Governor Sir Harry Smith. Pop.: Whites, 1315; Others, 2309.

**Lado Enclave**, region W. of the Upper Nile and NW. of Lake Albert. Originally administered by the Congo Free State, being leased in 1894 to Leopold II, King of the Belgians for his life (he d. 1909). Now included in the Mongalla dist. of Sudan, part in N. Uganda, to which it was transferred in 1914. Lado, on the Nile, 11 m. S. of Mongalla, was the cap. It was named from Mt Jebel Lado (2500 ft), and had an area of 15,000 sq. m.

**Ladoga, Lake**, largest lake in Europe (except the Caspian Sea), situated in NW. Russia, lat. 59° 56' to 61° 46' N. long. 29° 53' to 32° 50' E., bordering upon the Leningrad oblast and the Karelian Autonomous Rep. Area 7230 sq. m. The main inflowing rvs. are the Volkhov, Svir', and Vuoksa, and the outlet is by way of the Neva into the Gulf of Finland. Maximum depth, 780 ft. L. is subject to violent storms, and therefore a chain of navigable canals has been constructed round the S. shores. There is a famous monastery on the Valaam is. (q.v.). Much fighting for the lake took place between Russia and Finland, 1939-40, and again in 1944.

**Ladrones**, or **Marianne Islands** (**Marianas**), group of is. in the Pacific Ocean. They are 15 in number, 10 of which are of volcanic origin, and of these only 4 are inhabited, while the other 5 are coralline limestone is. All of them are densely wooded and the vegetation is luxuriant, the chief productions being coco-nut and areca palms, yams, manioc, coffee, cocoa, and sugar. The is. were discovered by Magellan in 1521, and called 'Islas de los Ladrones' by his crew on account of the thieving propensity of the inhab. They were originally the property of Spain, but Guam (q.v.), the largest, was ceded to the U.S.A. in 1898, and the rest were sold to Germany in 1899. In 1914 they were occupied by the Australians, but after the First World War were put under Jap. mandate. In the Second World War their strength and geographical position made the Marianas a highly strategic part of the Jap. system of is. fortresses, and formed one of the main barriers defending the seas between Japan and the Philippines. In 1944 they were captured by the U.S. forces. (See further PACIFIC CAMPAIGNS, OR FAR EASTERN FRONT, IN THE SECOND WORLD WAR.) On 19 July 1947 the U.S.A. formally took over the rule of the former Jap. mandated is. in the Pacific under U.N. trusteeship. All these is. had been administered by the Amer. Navy since their capture. Area 370 sq. m.; pop. 30,000. See L. M.

Thomson, *Archaeology of the Marianne Islands*, 1922, and *Guam and its People*, 1942, and T. Janahara, *Pacific Islands under Japanese Mandate*, 1940.

**Lady**, term used as the feminine of gentleman, or in a more confined sense as a title corresponding to lord. It is borne by the wives of peers and the daughters of dukes, earls, and marquesses, who are designated by the title L. prefixed to their Christian name. The wives of baronets and knights are also called L., but the title is prefixed to the surname only.

**Lady Chapel**, chapel dedicated to the Virgin Mary, usually a prolongation of the choir, built eastward of the high altar and projecting from the main building, but often an extension of a side aisle.

**Lady Day** (25 Mar.), festival of the Annunciation of Our Lady, the Blessed Virgin Mary. It is one of the four Eng. quarter days.

**Lady Margaret Hall**, college at Oxford for women students, named after the Countess of Richmond and Derby, mother of Henry VII. It was founded in 1878 according to the principles of the Church of England, but with full religious liberty for the members of other denominations.

**Ladybank**, burgh, par., and tn of Fifeshire, Scotland, 5 m. SW. of Cupar. It is an important railway junction, and a picturesque summer resort. There are malting works, farm mechanisation distributors, and repair shops. Pop. 1200.

**Ladybird**, popular name of the numerous species of polymorphous Coleoptera belonging to the family Coccinellidae, and remarkable for their beautiful variety of colouring. Their chief characteristic is the curious formation of the tarsi, of which only 3 of the 4 segments are visible, the third being sunk in the second; the antennae are short and slightly clubbed, and the head is largely concealed by the thorax. There are 2000 species, generally of a bright red or yellow colour, with black or coloured spots.

**Ladybrand**, tn of the Orange Free State, named after the wife of President Brand. Because of its extremely bracing climate it is much frequented as a health resort. Remarkable Bushmen paintings are found in nearby caves depicting Bushmen repelling non-Bantu invaders. Pop.: Whites, 2322; Bantu, 3991; Others, 143

**Lady's Mantle**, see *ALCHEMILLA*.

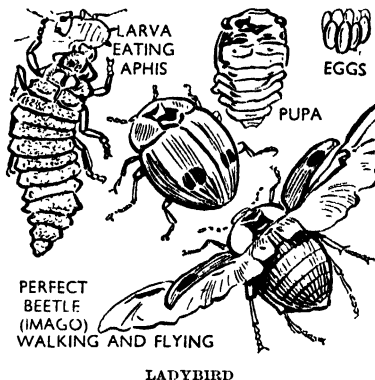
**Lady's Smock**, see *CARDAMINE*.

**Lady's Tresses**, see *SPIRANTHES*.

**Ladysmith**, tn in Natal, S. Africa, founded in 1851 and named after the Sp. wife of Sir Harry Smith, governor of the Cape 1847-52. L. was besieged by the Boer forces from 1 Nov. 1899 until relieved on 28 Feb. 1900. During the siege 3200 Brit. soldiers were killed or d. of disease. The Boers under Gen. Joubert agreed to the evacuation of the women and children to Ntombi Camp which was regarded as neutral ground. L. is a good centre for touring and is within easy reach of the Drakensberg Mts. Pop.: Europeans, 5439; Bantu, 12,000.

**Lae**, seaport and former cap. of the

Australian mandated ter. of New Guinea. It is situated in the Morobe dist. at the head of Huon Gulf at the mouth of the Wussi (Markham) R. After the volcanic eruption of 1937 in Blanche Bay, it was decided to move the seat of gov. from Rabaul (in the is. of New Britain) to L. L. remained the seat of administration until it was evacuated after the Jap. attacks in Jan. 1942. It was recaptured by Australian forces on 18 Sept. 1943. (For an account of the fighting for L. and Salamana see *PACIFIC CAMPAIGNS IN SECOND WORLD WAR*.) Little remained of L. after the war, and, except for the aerodrome there, L. has nothing to-day, not even a good harbour.



**Laelia**, genus of Orchidaceae, of about 35 species, all of which occur wild in tropical America, and many of which are epiphytes. The leaves are fleshy and the flowers very beautiful, for which reason they are often cultivated in Britain. *L. anceps*, bearing lilac-coloured flowers, *L. cinnabarina*, cinnabar-red flowers, and *L. pumila*, rose-purple, are popular species. **Laeliocattleya**, hybrids of the orchid genera *Laelio* × *Cattleya* which are found in nature, as well as being propagated. Their numbers exceed 2000.

**Laennec, René Théophile Hyacinthe** (1781-1826), Fr. doctor, b. Quimper in Brittany. He is famous as the inventor of the stethoscope, as well as for his numerous writings, among which may be mentioned *De l'Auscultation médiate*, 1819, which revolutionised the study of diseases of the chest and has been trans. into many languages; *Histoire d'inflammations de poitrine*, 1801, and *Observations sur les fièvres intermittentes*, 1807. L. also ed. the *Journal de Médecine*, and was physician to the Hôpital Necker for some years. He occupied the chair of medicine at the Collège de France in 1822, and was a member of the Royal Academy of Medicine. See life by R. Kervran, 1955.

**Laer, Pieter van**, see *BAMBOCCIO*.

**Laërtes**: Legendary King of Ithaca

and father of Odysseus, son of Acrisius and Chelomeedusa and husband of Anticleia. In youth he conquered Nericum and joined in the Calydonian hunt and the expedition of the Argonauts. While Odysseus was at Troy he lived in retirement, but after his return was rejuvenated by Athena.

**Laërtius, Diogenes**, see **DIAGENES**.

**Laess**, Dan. Is. in the Cattegat. The inhab. are engaged chiefly in the production of salt. There is little good soil, for the surface of the is. has been denuded of trees to provide fuel for the boiling of sea-water for the salt industry. Area 44 sq. m.: pop. 3250.

**Laetare Sunday**, name given in the Rom Catholic Church to the fourth Sunday in Lent, so called from the opening words of the Introit in the mass on that day. See **GOLDEN ROSE**.

**Laevulose**, see **FRUCTOSE**.

**La Farina, Giuseppe** (1815-73), It. his torian, who pub. sev. Liberal newspapers. In Florence he estab. in 1847 *L'Alba*, a democratic jour. advocating It. freedom and unity, but went back to Sicily on the outbreak of the revolution, and was exiled in 1849. In 1850 he pub. his *Storia documentata della Rivoluzione Siciliana del 1848-49*, 1850, and *Storia d'Italia del 1815-1848* (6 vols.), 1851-5.

**La Fayette, Gilbert Motier de** (c. 1380-1402), marshal of France, was descended from an anct family of Auvergne. In 1420 he was created marshal of France for his successes over the English and Burgundians on the Loire. He was in command of the troops at Baugé in 1422, and fought with Joan of Arc at Orleans 1429.

**La Fayette, Marie Joseph Paul Roch Yves Gilbert Motier, Marquis de** (1757-1834), Fr. general and politician, b. in the château de Chavagnac in Auvergne. He inherited his estates at the age of 13, and having served as sub-lieutenant under Noailles for a period, quitted France and sailed for America in 1777 to aid the colonists. He distinguished himself on the side of Washington, especially at the defence of Virginia in 1781 and at the battle of Yorktown in 1782. He had been made a major-general in the Fr. Army (1781), and in 1787 took his seat in the Assembly of Notables and demanded the convocation of the States-General, thus becoming a leader in the Fr. Revolution. In 1789 he was elected to the States-General, and being made vice-president of the National Assembly laid on the table a declaration of rights based on the Amer. Declaration of Independence. The same year he was chosen colonel-general of the new National Guard, and it was he who proposed the combination of colours now in the tricolour cockade of France. His position was difficult; although he struggled for order and humanity, the Jacobins detested his moderation, and the court hated his reforming zeal. He supported the abolition of title and all class privileges, but the hatred of the Jacobins increased and he was compelled to take refuge in Liège. He was imprisoned by

the Austrians for 5 years, but released by Napoleon, and again was a leader of the opposition (1825-30). During the revolution of 1830 he resumed his leadership of the National Guard, but was as unsuccessful as before. See *Mémoires, correspondances et manuscrits du général La Fayette*, pub. by his family, 1837-8; P. Guedalla, *Father of the Revolution*, 1926; M. de la Bedoyère, *Lafayette, a Revolutionary Gentleman*, 1933; M. de La Fuye, *Apostle of Liberty*, 1956. The life by A. Lutzko, 1933, contains a bibliography.

**La Fayette, Marie Madeleine Pioche de la Vergne, Comtesse de** (1634-93), Fr. author. b. Paris. She studied Greek,



Garnier

MME DE LA FAYETTE

Latin, and Italian, one of her tutors being Gilles de Ménage. She was friendly with Mme de Sévigné and intimate with La Rochefoucauld, this liaison lasting until his death. Her first novel, *La Princesse de Montpensier*, appeared in 1662, *Zayde* in 1670, *La Princesse de Clèves* in 1678. The last, her *chef-d'œuvre*, which gives a vivid picture of the court life of her day, bears a striking contrast in its simplicity to the lengthy and extravagant romances of the time. With its subtle study of emotions, it is one of the earliest psychological novels, and an important event in the hist. of the Fr. novel. In 1724 she wrote her last novel, *La Comtesse de Tende*. She also wrote *Histoire de Madame Henriette d'Angleterre* (pub. 1720). See C. Sainte-Beuve, *Portraits des femmes*, 1869; D. Haussenville, *Madame de La Fayette*, 1891; H. Ashton, *Mme de La Fayette, sa vie et ses œuvres*, 1922; F. Styger, *Essai sur l'œuvre de Mme de La Fayette*, 1944.

**Lafayette:** 1. City, co. seat of Tippecanoe co., Indiana, U.S.A., on the Wabash R., in grain, live-stock, and coal area, 58 m. NW. of Indianapolis. It has meat-packing plants and foundries, and manufs. rubber, paper, electrical appliances, etc. It is the seat of Purdue Univ (14,000 students). Pop. 35,600.

2. City of Louisiana, U.S.A., on the Vermilion Bayou, 145 m. W. of New Orleans. It is an important shipping centre, and has railway shops, canneries, sugar refineries, and other plants. Pop. 33,500.

'Lafayette' (Fr. liner), see 'NORMANDIE.'

La Ferté, see FERTÉ-SOUS-JOUEUR.

Laflite, Jean, see BARATARIA.

**La Follette, Robert Marion** (1855-1925), Amer. politician, popularly known as 'Fighting Bob.' b. Dane co., Wisconsin, and educ. at Wisconsin Univ. He entered politics as a Republican, and served 3 terms in Congress from 1885 to 1891, after which he was governor of the state for 2 terms from 1901 to 1905. In the latter year he was elected to the U.S. Senate, serving in it until his death. In 1912 he and his friends founded the Progressive party, bitterly assailing President Taft for signing the Payne-Aldrich Tariff Bill, which revised the tariff upwards. In 1924 he and his friends formed a new Progressive party, and he was nominated as president but only succeeded in capturing the electoral votes of his own state.

**La Fontaine, Jean de** (1621-95), Fr. poet, b. at Château-Thierry in Champagne. On both sides his family was of the highest prov. class, but was not noble. His father was *maître des eaux et forêts* and was well-to-do. Jean, who was the eldest child of his parents, was educ. at the local grammar school of Château-Thierry, and at the close of his schooldays entered the oratory and seminary of St Magloire, with a view to taking holy orders, but quickly found that he was entirely unsuited to that calling. He then studied law and was admitted *avocat* but did not practise, for about that time his father assigned his rangership to his son and arranged a marriage for him with a pretty girl of 15, Marie Héricart, of whom La F. soon grew tired. One son was born to them and was taken care of wholly by his mother. In 1659 La F. agreed to a div. of property and left his wife. He settled in Paris where he came under the influence of different patrons belonging to the nobility—the Duchesse de Bouillon, the Prince de Condé, Mme de la Fayette, and the beautiful Mme de la Sablière, a woman of high character and considerable intellectual power, who invited La F. to make his home in her house. Here he worked and lived for 20 years, drifting into that careless and easy-going existence which lasted till his conversion, just before his death, after an energetic young priest, M. Poucet, had brought La F. to realise and to acknowledge the impropriety of the *Contes*. Although Mme de la Sablière later had given herself up almost entirely to good works and religious exercises, La

F. still remained as an inmate of her house till her death in 1693. He himself only survived her about 2 years, and was buried in the cemetery of the Holy Innocents. From childhood he began to write verses, and in 1654 pub. a verse trans. of the *Eumuchus* of Terence. This got him an introduction to Fouquet, the *Maecenas* of Fr. literature at the time, who awarded him a pension of 1000 francs for a piece of verse quarterly. After this he took up writing seriously for a time, and produced *Le Songe de Vaux*, 1659, a medley of prose and poetry on Fouquet's country house, and *Les Rieurs du Beau-Richard*, a ballad, the same year. But La F., though a charming and gifted writer, was dissipated and idle, and it was not until 1684 that he



LA FONTAINE

produced anything of importance. In this year the first book of his *Contes* appeared, the subjects of which are taken from Boccaccio, Ariosto, Machiavelli, and other writers. The stories are admirably told, but the book is coarse. In 1668 his *Fables choisies mises en vers* appeared, and in 1669 *Les Amours de Psyché et de Cupidon*. The *Fables*, which are free from the impropriety of the *Contes*, are known universally, and are generally regarded as his masterpiece. They exhibit the fecundity and versatility of the author, and what perhaps is the greatest praise, given by De Sacy, they give delight to 3 sev. ages—to the child by their freshness and vividness, to the student on account of their perfect art, and to the man of the world on account of the subtle reflections on character contained therein. In his *Fables* La F. invented nothing. He found his subjects in numerous sources—Aesop, Phaedrus, Babrius, and other ancient, or in 16th-cent. writers such as Des Périers, Rabelais, and Marot; but, having taken his subject, he transformed it by his wonderful gifts as a poet and psychologist. La F. was received into the Academy in 1684. See C. Walckenaer, *Histoire de la vie et des ouvrages de La*

*Fontaine*, 1820; H. Taine, *La Fontaine et ses fables*, 1853, and many later eds.; R. Bray, *Les Fables de La Fontaine*, 1929; J. Vianey, *La Psychologie de La Fontaine*, 1939; E. Baudin, *La Philosophie morale des Fables de La Fontaine*, 1951; lives by G. Michaut, 1912-14, and A. Bailly, 1937; also Eng. trans. of the *Fables* by Sir E. Marsh, 1931.

**Lafontaine, Sir Louis Hyppolyte** (1807-1864), Canadian statesman, b. Lower Canada. Educ. at Montreal, he became a barrister. In 1830 he became a member of the Legislative Assembly, and about 1839 leader of the *parti prêtre*. He was opposed to the union of Upper and Lower Canada in 1840. He was an M.P. in 1841. In 1842 he joined with Robert Baldwin in forming the first Baldwin-L. administration, holding the portfolio of attorney-general for Lower Canada, but, disagreeing with Sir Charles Metcalfe, he resigned in 1843. In opposition until 1848, he was then called upon by Lord Elgin to form the so-called second Baldwin-L. administration, in which he was again appointed attorney-general; it was he who introduced the Rebellion Losses Bill of 1848, the passing of which finally estab. the triumph of responsible or parl. gov. in Canada. This marked the height of his parl. career and thenceforth he was more conservative in his outlook, particularly on the controversial questions of the abolition of seigniorial tenure and the secularisation of the clergy reserves. Resigned 1851 and withdrew from public life; but in 1853 became chief justice of Lower Canada, which position he held until his death. Baronet, 1854. He collaborated with Jacques Viger in *De l'esclavage en Canada*, 1859. See S. Leacock, *Baldwin, Lafontaine, Hincks*, 1907.

**Laforgue, Jules** (1860-37), Fr. poet, sometimes called by his enthusiastic friends the Fr. Heine, b. Montevideo, of Fr. parents originally from Brittany. When a mere boy he returned to Tarbes, where he was educ., and afterwards lived in Paris, where he studied at the Lycée Condorcet. Through Paul Bourget he obtained the post of Fr. reader to the Ger. Empress Augusta. He held this post from 1881 to 1886. In his leisure moments he studied English and German and wrote verses. He married Leah Lee, a young Eng. girl, and settled in Paris, but succumbed to tuberculosis in a few months. He was one of the first to use the 'vers libre.' His work is often marked by a bitter irony, the result of his foreknowledge that all things were to be brief for him. His best books of verse are *Les Complaintes*, 1885, and *Imitation de Notre-Dame la lune*, 1886. His most famous prose work is his short stories in *Mes moralités légendaires*, 1887. See life by J. Cusinier, 1925, and M. J. Durry, *J. La Forgue*, 1952.

**Lagarde, Paul Anton de** (1827-91), Ger. orientalist, b. Berlin, his real name being Böttcher, and L. being assumed in 1854. He studied Semitic languages, Coptic, Persian, Armenian, and other oriental tongues. He was prof. at Göttingen

Univ. from 1869 to his death. His works deal with Semitic philology, with the versions of the Bible, and with the hist. and geography of Persia and Armenia. He also wrote poetry, pub. the It. works of Giordano Bruno (q.v.), and took an active part in the Ger. Nationalist movement, being in favour of a Ger. national Church. His minor pubs. are collected in the following works: *Gesammelte Abhandlungen*, 1866; *Semitica*, 1878-9; *Orientalia*, 1879-80; *Mitteilungen*, 1888; *Deutsche Schriften* (4th ed.), 1903.

**Lagemann**, see LAYAMON.

**Lagenaria Vulgaris**, single species of its genus, is the Bottle Gourd of Asia and tropical Africa; an ann. climber, grown as a summer ann. in Britain.

**Lager Beer**, see BREWING, *Lager*.

**Lagerkvist, Pär** (1891- ), Swedish poet, playwright, and novelist, b. Växjö. At first influenced by expressionism, notably in his poems *Angest*, 1916, and *Kaos*, 1918, he later matured towards a critical humanism, already evident in his play *Han som fick leva om sitt liv*, 1928. He bitterly opposed the injustice and violence of the Hitler régime in his drama *Bödeln*, 1934, and the historical novel *Dödgräset*, 1944. He was awarded the Nobel prize for his moving novel *Barabbas*, 1951. His works have been trans. into many languages, and his influence on the writers of his generation has been considerable. See E. Hörnström, *P. Lagerkvist*, 1946; J. Möjberg, *Livsproblemet hos Lagerkvist*, 1951.

**Lagerlöf, Selma** (1858-1940), Swedish novelist and poet, b. Mårbacka. She taught at Landskrona, 1885-95. In 1890 she received a prize in a magazine for some chapters of *Gösta Berlings Saga* (pub. in 1891), and took up literature in earnest after 1895. In this, as in all her best work, there is a happy combination of past and present, myth and reality, faith and uncertainty, which has made her one of the most popular novelists of her time. She received a doctor's degree from Upsala Univ. in 1907, and gained the Nobel prize in 1909. Her works, trans. into many languages, include *Invisible Links*, 1894, *Miracles of Antichrist*, 1897, *From a Swedish Homestead*, 1899, *Jerusalem*, 1901, *The Adventures of Nils*, 1906, *Charlotte Lövensköld*, 1925, and *The Diary of Selma Lagerlöf*, 1937. She was the first woman to be elected a member of the Swedish Academy (1914). See W. A. Berendsohn, *S. Lagerlöf*, 1927; E. Wagner, *S. Lagerlöf* (2 vols.), 1942-3; J. Bäckmann, *Mitt liv med S. Lagerlöf*, 1944; B. Ek, *S. Lagerlöf efter Gösta Berlings saga*, 1951.

**Lagetta**, family Thymelaeaceae, genus of W. Indian evergreen trees, of which *L. linearis* is the source of the beautiful Lace Bark of commerce, a fabric of many uses.

**Laggen, Loch**, lake in Inverness-shire, Scotland, situated 800 ft above sea level and surrounded by deer forests. The shore is sandy and the dunes formed by SW. winds give L. the appearance of a sea loch on the W. coast. Goosander abound, and the waters, which receive

Pattack R., are the haunt of the ferocious trout.

**Laghouat**, or **El Aghuat**, military cap. of Algerian Sahara, 200 m. SW. of Algiers, an important mart. Pop. 7000.

**Lagny**, Fr. tn in the dept of Seine-et-Marne, on the Marne. It has ruins of an ancient monastery and church. At Pompoane, near by, 200 persons were killed in a railway accident in 1933. It has tanneries, and manufs. fine brushes. Pop. 7600.

**Lago Maggiore**, see MAGGIORE.

**Lagoon** (Fr. *lagune*; Lat. *lacuna*, a pool): (1) Shallow stretch of salt water near the sea. Such L.s have been formed by the gradual raising of a sand-bar on the extension of a spit on a low shore, so that a sheet of water is isolated from the sea. (2) Sheet of fresh water at some distance inland, usually shallow and of small extent. Such are found in the old lake plains of Australia, and are the haunt of numerous aquatic birds. (3) The expanse of smooth sea-water enclosed by a coral reef or atoll in the S. Seas, etc.

**Lagos**: 1. Former Brit. crown colony of W. Africa, on the Slave Coast, and after 1906 a W. prov. of S. Nigeria. In 1886 a separate colony and protectorate of L. was constituted; and in 1908 L. and S. Nigeria were united as the colony and protectorate of S. Nigeria; in 1918 the protectorate was united with that of N. Nigeria to form the colony and protectorate of Nigeria. It is now part of the W. Region of the Federation of Nigeria. It is the centre of the W. African palm-oil trade, and also exports oil nuts, rubber, cotton, timber, cacao, and gum copal. Area 29,000 sq. m.; pop. 1,500,000 (4500 non-Africans).

2. Tn and seaport of Nigeria, of which it is also the cap. At L. are the residence of the governor-general and the Federal Gov. H.Q. It stands on an is. near the N. shore of the bight of Benin, and is joined to the mainland by a bridge. It has large docks, floating docks, and wharves, and is connected by rail with Kano, 700 m. to the NE. It does a large and lucrative trade with all parts of Nigeria, especially in exporting palm oil and palm kernels, cocoa, ground nuts, hides, etc. L. is included in the old colony of Nigeria, but it is the H.Q. of the whole protectorate. An attempt is being made to develop an African municipal corporation on the European model, but corruption and lack of administrative experience militate against any marked degree of success. Town-planning and slum clearance are being carried out. There is a wireless station under the control of Cable and Wireless Ltd. L. has secondary schools for boys and girls. Pop. 137,400 (500 Europeans).

**La Grande-Combe**, see GRAND-COMBE, LA.

**Lagrange, Joseph Louis, Comte de** (1736-1813), Fr. mathematician, b. of Fr. parents at Turin. At an early age he became prof. of mathematics in the Royal School of Artillery, and there formed an association which rose to the status of The Twin

Academy of Sciences. He contributed largely to the *Memoirs of the Academy of Turin*, investigating the propagation of sound, the vibration of chords, and the motion of fluids. In 1764 he gained a prize offered by the Fr. Academy of Sciences for a *Theory of the Liberation of the Moon*. In 1766 he became a director of the Berlin Academy of Sciences, in 1772 a foreign associate of the Academy of Paris, and in 1787 settled in Paris, where he became in 1794 prof. of geometry at the Polytechnic School. Author of *La Mécanique analytique*, 1788, *Théorie des fonctions analytiques*, 1798, *Traité de la résolution des équations de tous degrés*, 1798, and *Leçons sur le Calcul des Fonctions*, 1806. His great discovery was the method of variations. See memoir by J. B. J. Delambre, 1876-7.

**La Grange**: 1. Co. seat of Troup co., Georgia, U.S.A., 60 m. SE. of Atlanta. It has cotton mills and manufs. of tire-cord fabrics, yarns, overalls, cloth, also saw-mills. La G. College is here. Pop. 25,025.

2. Residential vil. in Illinois, U.S.A., on the W. of Chicago, with manufs. of Diesel locomotives, aluminium products. Pop. 12,000.

**La Guaira**, chief seaport of Venezuela, on the Caribbean Sea, 10 m. N. of Caracas, of which it is the port. It is connected with Caracas by the La G. and Caracas railways, one of the most picturesque mt railways in the world, and by a specially built road, for automobiles only. It is closely surrounded by mts except to seaward. There is an excellent harbour of 90 ac., with a depth alongside the quays of 10 to 40 ft., formed by a breakwater constructed in 1885 by a Brit. company. A large export trade is done in coffee, cacao, indigo, cotton, sugar, and hides, and there are rich oilfields in the vicinity. There is a busy modern airport and wireless station. The tn was founded in 1588 by Diego de Osorio. It was the scene of much fighting during the War of Independence. Pop. (including the suburb of Maiquetia) 10,000 (70,000 in nearby coastal townships, such as the resort of Maracaibo).

**La Guardia, Fiorello Henry** (1882-1947), Amer. lawyer and politician, b. New York and educ. at New York Univ. He was deputy attorney-general of New York, 1915-17, and a member of Congress, 1917-21, 1923-33. In the First World War he commanded the 8th Centre Aviation School and the Amer. Flying Force on the It. front. He was the first Republican for 20 years to be elected president of the Board of Aldermen of New York City (1920). Elected mayor of New York City, 1933, and 3 times re-elected, he initiated a federal housing scheme and measures for safeguarding labour interests. He was also a successful mediator in labour disputes. His address (Mar. 1937) before the Amer. Jewish Congress, in which he attacked Hitler's anti-Semitic policy, induced Germany to make diplomatic protests. From 1940 he was chairman of the U.S. section of the Canada-U.S.

Defence Board, and director of U.S. civil defence from 1941 to 1942. He was director-general of U.N.R.R.A. from 31 Mar. 1946 until the end of that organisation on 31 Dec. 1946. See *The Making of an Insurgent: an Autobiography, 1882-1919*, 1948, and Ernest Cuneo's *Life with Fiorello*, 1955.

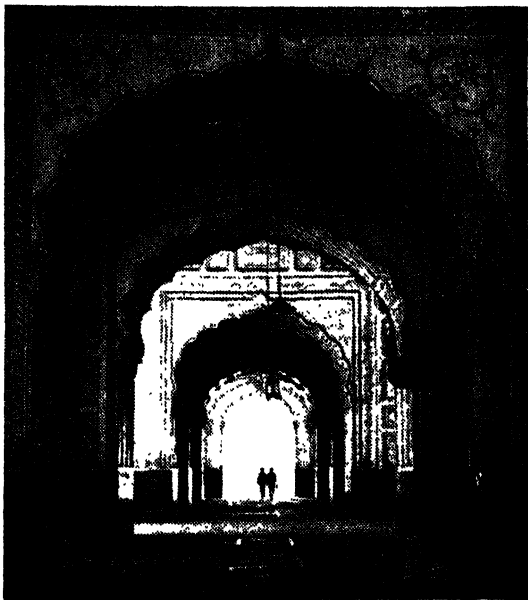
**Laguna:** 1. Prov. of Luzon, Philippine Is., on the lake known as L. de Bay, which extends almost across the is. The dist. is mountainous (chief peaks Banahao, 7177 ft. and Maquiling, or Makiling, 3750 ft.) with fertile valleys, and rice, sugar, and

**Lahn**, riv. of Germany, a trib. of the Rhine (q.v.). It rises in the Rothaargeb., 10 m. E. of Siegen (q.v.), and flows E., and then S. and SW. to join the Rhine 6 m. above Koblenz (q.v.). The prin. tns on its banks are Marburg, Giessen, and Limburg. Length 135 m.

**Lahnda Dialect** (of Punjabi language), see INDO-EUROPEAN LANGUAGES.

**La Hogue, Battle of**, sometimes called **Barfleur**, fought between the Eng. and Dutch fleets, numbering in all 99 ships, on the one side, and the French under Tourville with 44 ships, on 14-16 May

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coco-nuts are produced. The cap. is Santa Cruz. Area 465 sq. m.; pop. 321,247.

2. (or **La Laguna**) Sp. tn in the Canary Is. (q.v.), formerly the cap. of Tenerife (q.v.). It has fine streets of balconied houses, a cathedral, and a univ. college. Pop. 33,000.

**La Habana**, see HAVANA.

**Laharpe, Jean François de** (1739-1803), Fr. dramatist and critic. b. Paris, educ. at the Collège d'Harcourt. In 1766 he became a member of the Fr. Academy, and in 1786 began to lecture on literature at the Lycée de Paris. He supported the revolution, but came under suspicion in 1794 and was imprisoned. His works include the tragedies *Warwick*, 1763, *Timoléon*, 1764, *Pharamond*, 1765, *Gustavus Vasa*, 1766, *Mélanie*, 1770, *Eloges* (of Henry IV, Fénelon, Racine, etc.), 1779, *Cours de littérature* (18 vols.), 1799. See life by A. Boehlingk, 1925.

1692. The English and Dutch advanced towards La H. to destroy the armament which was being prepared to invade England. Tourville was unaware of the union of the allied fleets, and left Brest confident that treachery would prevail in the Eng. ships, through supposed Jacobite sympathies in England. Off Barfleur he was deceived, when he came in sight of the allied fleets under Russell. A running fight ensued for 3 days, during which the French lost 25 ships, 18 of them running aground near the camp of the 'Irish Brigade' and Fr. troops concentrated for transport across the Channel. These 18 ships were followed up by the Eng. sailors in boats, and were burned under the eyes of the exiled James II.

**Lahore**, city of N. Pakistan, situated on a trib. of the R. Ravi, 32 m. W. of Amritsar (India). Traditionally the chief tn of the Punjab, L. is now uncomfortably close to

the border between India and Pakistan. L. is an old city and in AD 1013 was the seat of a Brahmin king of Kabul, before being captured by Mohammed of Ghazni. The old city reached its peak under the Mogul emperors when Akbar extended the fort and walled the tn, Shah Jahan built the palace and Aurangzeb the large Badshahi mosque. From 1775 L. became largely a Sikh tn, and Ranjit Singh did much to expand its importance. It came under Brit. rule in 1849. The old buildings of greatest interest are the mosque of Wazir Khan (early 17th cent.), the fort wall, especially the N., and the Badshahi mosque which, though unadorned, is of remarkable extent. The Shalimar Gardens, 5 m. E., are famous.

L. is now a large railway, commercial, and political centre. It has fine modern buildings and gardens and a museum with a particularly fine and varied collection of exhibits. It remains the H.Q. of the Muslim League, and many of their most important decisions were taken here. Being so close to the Indian border upon partition L. was the scene of much communal violence, bloodshed, and destruction. To-day, as elsewhere in Pakistan, it is the scene of energetic reconstruction, development, and planning for the future. Pop. 850,000.

**Lahr**, Ger. tn in the *Land* of Baden-Württemberg (q.v.), 67 m. WSW. of Stuttgart (q.v.). It has a 13th-cent. abbey church and other auct buildings. The prin. industries are lithography and printing, and the manu. of textiles and leather goods. Pop. 20,000.

**Lalbach**, see LJUBLJANA.

**Laidlaw**, William (1780-1845), poet, b. Blackhouse, Selkirk. After unsuccessful farming ventures he became in 1817 a kind of steward at Abbotstford, acting as Walter Scott's amanuensis and general adviser. He wrote sev. lyrics and ballads, notably 'Lucy's Flittin'', and compiled part of the *Edinburgh Annual Register* under Scott's direction. After Scott's death he was factor on 2 Ross-shire estates, and d. at Contin. See the selection from his prose writings with a biographical sketch by Sir G. B. Douglas, 1901.

**Laligle**, Fr. tn in the dept. of Orne, on the R. Risle. There is a 12th-cent. clock tower. The S. wing of the castle, built in 1690 by Hardouin Mansard (q.v.), was destroyed during the Second World War, when the tn itself was badly damaged. Needles and pins are manu. Pop. 5900.

**Lalingsnek**, pass through the Drakensberg, Natal, S. Africa. Altitude from 5400 to 6000 ft. The railway, opened in 1891, pierces it, and previously the road over it was the chief means of communication between Durban and Pretoria. It figured in the Boer War of 1880-1.

**Lais**, name of 2 famous courtesans of auct Greece: 1. Native of Corinth (b. c. 480 bc), famous for her greed and heartlessness; among her lovers were the philosophers Aristippus and Diogenes.

2. Native of Hyccara, Sicily (b. c. 420 bc), taken to Corinth after the Athenian expedition to Sicily. She was the rival of

Phryne, and numbered the painter Apelles among her lovers. She was stoned to death by some jealous women of Thessaly.

**Laissez-faire**, Fr. phrase meaning 'let alone,' an axiom of some political economists deprecating state attempts to regulate or restrict trade competition. Its origin is attributed to Legendre about 1680, who, in an interview with Colbert respecting gov. interference with commerce, remarked: 'Laissez-faire, laissez-passer.' See CLASSICAL ECONOMISTS and INDIVIDUALISM.

**Laity**, The, strictly speaking, means all persons who are not clergy, but the term has been extended to mean all persons who are not of a certain profession, such as law or medicine, as distinguished from all belonging to it.

**Lai-yang**, city in the prov. of Shantung, China, 60 m. WSW. of Weihaiwei. It has manu. of silk and a peculiar type of wax. Pop. (estimated) 50,000.

**Lake**, still sheet of water lying in a hollow of the ground and not in direct communication with the sea. Ls are almost universally distributed, although most common in high lats., and are due to various causes. Crater Ls occupying volcanic craters are found in Italy, France, Oregon, U.S.A., and in many places where there are dormant volcanoes, while Ls formed by the subsidence of the roofs of subterranean limestone caves are found among the Jura Mts. The gradual movement of the earth's crust in the formation of mts is responsible for such Ls as that of Geneva, while a landslip damming up the course of a riv. is the cause of such L. basins as the Gohna, formed in the Himalayas in 1894. Ls Nyasa, Tanganyika, Rudolph, etc., in E. Africa lie in rift valleys formed by subsidence of narrow troughs along faults. In N. lats. and in the Alps a glacier occasionally forms a dam in a riv. valley, and the deposit of glacial drift left by a retreating glacier is a very common cause of L. formation, especially in N. America, while glacial erosion is probably the cause of many of the Ls of Switzerland and Scotland. The L. waters are either fresh or salt. Salt and bitter Ls abound in regions where there is small rainfall and no draining riv. Such Ls as the Dead Sea and Great Salt L. are descended from fresh-water Ls, only becoming saline when the rate of evaporation exceeded the rate of the inflow. The Caspian and Aral Seas are really only isolated portions of the ocean. When the rate of inflow exceeds that of evaporation the L. grows gradually fresher. The greatest group of fresh-water Ls in the world consists of Ls Superior, Michigan, Huron, Erie, and Ontario on the E. border between the U.S.A. and Canada. Usually referred to as the Great Ls., they are really inland seas of fresh water. Steamships of ocean-going size traverse them, carrying huge cargoes of wheat and iron ore. L. Superior is 350 m. long and 160 m. wide, with a total area of 31,820 sq. m.; Michigan is 307 m. long and 118 m. wide, with an area of 22,400 sq. m.; Huron is 206 m. long and 101 m. wide, with an area of



23,010 sq. m.; Erie is 241 m. long and 57 m. wide, with an area of 9940 sq. m.; Ontario is 193 m. long and 53 m. wide, with an area of 7540 sq. m. Deepest soundings in L. Superior are 1290 ft. See F. A. Forel, *Handbuch der Seenkunde*, 1901; L. W. Collet, *Lacs*, 1925; P. T. Jones, *The English Lakes*, 1933. For movements of L. water see SEICHES, and for the forms and biology of fresh-water L.s, see GEOGRAPHICAL DISTRIBUTION.

**Lake**, in dyeing, an insoluble coloured compound deposited in the fibres of a fabric, soaking the latter first in a solution of a mordant (e.g. alum) and then in a solution or suspension of a dye. Different

deepest lake), and to the E. of Windermere lie Kentmere and Langdale. In the NE. is Swindale, and thence W. lie Mardale (with Haweswater), Patterdale with Ullswater (the 'English Lucerne'), Thirlmere, Borrowdale (with Derwentwater), Bassenthwaite Lake, Buttermere, and Crummock Water, Loweswater and Ennerdale (with Ennerdale Water). Thirlmere and Haweswater are reservoirs for Manchester. There are sev. waterfalls, the most famous being Lodore; Scale Force, Buttermere, is the highest (125 ft.). Keswick, Ambleside, Bowness (Windermere), and Hawkshead (Esthwaite) are places of importance. The chief mts are Scafell



Photo by Valentine, Dundee

#### DERWENTWATER AND BASSENTHWAITE IN THE ENGLISH LAKE DISTRICT

mordants often give L.s of different colour with the same dye; thus alizarin with alum gives the L. known as Turkey red, while with a ferric salt instead of alum the alizarin L. is violet. See DYE and PIGMENTS.

**Lake Charles**, city, cap. of Calcasieu par., Louisiana, U.S.A., 190 m. W. of New Orleans. It is the centre of a big lumber trade and rice-producing dist., and has rice-mills, car shops, and a large woollen industry. There are sulphur mines and oilfields in the neighbourhood. Pop. 41,000.

**Lake District National Park**, The, of England, lies in Cumberland, Westmorland, and the Furness dist. of Lancs., and embraces all the prin. Eng. lakes, although its area is only 866 sq. m. The scenery and character of the lakes are very varied, ranging from wild, picturesque, rocky precipices to flat or softly sloping wooded banks. Windermere, the largest of the lakes (11 m. by 1 m.), lies in the SE. corner of the dist. and is connected with Rydal Water, Grasmere, Elterwater, and Esthwaite. To the W. lies Conistone Water and the high fells of the Conistone Old Man range. Further W. lie Dunnerdale, Eskdale, Wasdale (with Wastwater, the

Pike (3210 ft), the highest summit in England; Scafell (3162 ft); Helvellyn (3118 ft); Skiddaw (3054 ft); and Great Gable (2949 ft). Rock climbing is practised chiefly on the Scafell rock faces, the Pillar rock, Great Gable, and the Langdales (see special guides issued by the Fell and Rock Club). Large tracts of mt country have been acquired for the public through the National Trust, who now own about 47,000 ac. with common rights over a further 56,000 ac. The L. D. became a national park in 1951 and is administered by the L. D. planning board from offices at Kendal. See Wordsworth's *Descriptions of the Scenery of the English Lakes*, 1833; A. Bradley, *The Lake District*, 1901; W. G. Collingwood, *The Lake Counties*, 1902, 1949; M. J. B. Baddeley, *The Lake District*, 1913; G. Home, *English Lakes*, 1922; H. H. Symonds, *Walking in the Lake District*, 1935, 1948; J. H. B. Bell, E. F. Bozman, and J. Fairfax Blakeborough, *British Hills and Mountains*, 1940; N. Nicholson, *Cumberland and Westmorland*, 1949, and *The Lakes*, 1955; W. A. Poucher, *Lakeland Scrapbook*, 1950, and *Escape to the Hills*, 1952; W. Heaton Cooper, *Lakeland Portraits*, 1954; F. Singleton, *The English Lakes*, 1954.

**Lake Dwellings**, houses, etc., built on a platform or framework of timber and often supported on piles. Similar constructions are sometimes found on marshy ground. While most of them are of prehistoric age, some were constructed early in the medieval period. *See also* CRANNOG and PILE DWELLINGS.

**Lake Fisheries**, *see* FISHERIES.

**Lake Geneva** (Switzerland and France), *see* GENEVA.

**Lake Geneva**, resort and residential city in Wisconsin, U.S.A., on the lake of the same name 40 m. SW. of Milwaukee. Yerkes Observatory of the univ. of Chicago is 6 m. away at Williams Bay. Pop. 4300.

**Lake of the Woods**, lake in the SW. of the prov. of Ontario, Canada, situated between Lakes Winnipeg and Superior. It is 70 m. in length, and owing to its irregular shape the breadth varies from 10 to 50 m. The total area is 1500 sq. m. and the lake contains numerous is., on many of which summer residences have been built. The chief riv. flowing into the lake is Rainy R. from the E., and it discharges into Lake Winnipeg by Winnipeg R. on the NE.

**Lake School of Poets**, name given to the group of poets comprising Wordsworth, Coleridge, and Southey. It was used first by the *Edinburgh Review*, Aug. 1817, in a criticism of Wordsworth's preoccupation with the wilder aspects of nature in the Eng. lake dist. Later it was generally accepted as a convenient label marking the associations of the group with that area—Wordsworth with Hawkshead, Grasmere, and finally Rydal, Coleridge with Rydal and Keswick, and Southey with Keswick. The term has no real literary significance, for these 3 poets had little in common beyond the fact that they all played a part in the Romantic Movement.

**Lakeland Terrier**, wire-haired terrier of medium size, weighing about 16 lb. The skull is moderately broad, the ears small and V-shaped, the eyes dark; the body is short, and the tail docked. Evolved as an attendant to the packs of foxhounds in the Fell country, the breed makes a good sporting companion, as well as a house-dog, being hardy and easily trained.

**Lakes**, *see* PIGMENTS.

**Lakewood**, city of Ohio, U.S.A., 7 m. SW. of Cleveland, of which it is a residential suburb, with some manufacturing. Pop. 68,000.

**Lakh**, or **Lac**, derived from a Sanskrit word *laksha*, meaning 'one hundred thousand.' Generally used in India to signify 100,000 rupees, the current exchange value of which, at 1s. 6d. to the rupee, is £7500.

**Lakshmi**, in Hindu mythology, the goddess of fortune, and the wife of Vishnu, representing his creative energy. She was the mother of Kama, the god of love. The festival of L. is celebrated by the writer caste in Bengal, who, in her honour, purify all writing materials and abstain from using them during the feast.

**La Laguna**, *see* LAGUNA.

**Lalande, Joseph Jérôme Lefrançois de** (1732-1807), Fr. astronomer, b. Bourg, Ain. He was sent to Berlin in 1752 to make observations on the lunar parallax there, and on the successful completion of his task was appointed adjunct-astronomer to the Academy of Paris. In 1762 he succeeded Delisle at the Collège de France. In 1802 he instituted the L. prize for the chief astronomical performance of each year. Among his pub. are *Traité d'astronomie* (2 vols.), 1764, *Histoire céleste française*, 1801 (containing the places of 50,000 stars), and *Bibliographie astronomique*, 1803.

**La Libertad**, *see* LIBERTAD.

**Lalin**, Sp. tn in the prov. of Pontevedra. It is the centre of a highland agric. dist., and has tanneries and paper mills. Pop. 18,500.

**La Línea**, *see* LÍNEA, LA.

**'Lalita-Vistara'**, one of the most celebrated works in the literature of Buddhism, being an account of the life and doctrines of the Buddha, partly in prose and partly in verse, and dating, probably, from about the time of Christ. A Tibetan version has been trans. into French by P. E. Foucaux, and there is an Eng. trans. of the Sanskrit version. *See Transactions of the Bengal Asiatic Society* and E. Burnouf, *Introduction à l'histoire du buddhisme indien*, 1844.

**Lallans**, Scottish variant of 'Lowlands,' is a term applied to the Lowland Scottish tongue, especially in its use as a literary language by Scottish poets since the days of Burns, who writes in the postscript to his *Epistle to W. Simpson* of those who 'spak their thoughts in plain, braid Lallans.' The word has been popularised by writers of the Scottish Literary Renaissance which dates from the end of the First World War.

**Lally-Tollendal, Thomas Arthur, Comte de** (1702-66), Fr. general, b. Romans, Dauphiné. He inherited his title from his mother, his father being an Irish Jacobite, Sir Gerard O'Lally. He entered the Fr. Army in 1721, served in the war against Austria (1734), and took part in the battles of Dettingen (1743) and Fontenoy (1745). He accompanied Prince Charles Edward Stuart to Scotland in 1745, and was present at the battle of Falkirk. When war was declared between France and England (1756) L. was sent as commander of the Fr. expedition to India. At first he met with some success, but, deserted by the fleet, under Laché, was forced to retire from the siege of Tanjore and of Madras (1758). He was defeated at Wandiwash (1760) and forced to surrender Pondicherry in 1761. As an Eng. prisoner on parole he returned to France to answer charges of treachery, was imprisoned in the Bastille for 2 years, and finally tried and executed in 1766.

**Lally-Tollendal, Trophime Gérard, Marquis de** (1751-1830), Fr. politician and author, son of the above, b. Paris. After his father's execution he devoted himself to proving his innocence, but without complete success. In 1789 he was deputy to the States-General for the noblesse of

Paris and in 1791 fled to Switzerland and later to England. He returned to Paris during the Consulate, and was created a peer by Louis XVIII. In 1816 he became a member of the Academy. He pub. *Plaidoyer pour Louis XVI*, 1793, *Défense des émigrés français*, 1794, and *Le Comte de Stafford*, 1795.

**Lalo, Edouard** (1823-92), Fr. composer, b. Lille. He studied at the Lille and Paris Conservatoires and, failing to get his first opera produced, made his first success with 2 works for violin and orchestra written for Sarasate, the Concerto in F, 1874, and the *Symphonie espagnole*, 1875. The ballet *Namouna*, 1882, and the opera *Le Roi d'Ys*, 1888, are his only notable stage works, and even they are now almost forgotten; but of his orchestral music the 2 *Aubades* and the *Rapsodie norvégienne* are still remembered. He was gifted with remarkable novelty in orchestration and warm vivid melody, and his music excited enthusiasm among the younger generation, including such men as Debussy and d'Indy. L. is considered precursor of the modern Fr. school, and his influence on Debussy and Dukas is unmistakable. See studies by O. Séré (in *Musiciens français*), 1911, and G. Servières, 1925.

**La Louvière**, industrial tn in the prov. of Hainaut, Belgium, 11 m. E. of Mons. It has collieries, blast furnaces, and stone, lime, and moulding-clay quarries. The chief manufs. are iron, steel, glass, ceramics, and fireproof products. The second hydraulic lift on the Canal du Centre is at La L. (see HOUDENG-AIMERIES). Pop. 23,400.

**Lama** (priest), see LAMAISM; (animal of Peru), see LLAMA.

**Lama-Miao** (Mongolia), see DOLON-NOR. **Lamachus**, Athenian general during the Peloponnesian war and the son of Xenophanes. He was sent into Sicily with Nicias and Alcibiades, and displayed great courage and ability throughout the campaign, but was killed before the walls of Syracuse (414 BC). See Thucydides vii, Aristophanes' *Acharnians*, and Plutarch's *Nicias*.

**Lamaism** (Tibetan *lama*, spiritual teacher), corrupt form of Buddhism, the religion prevalent in Tibet and Mongolia. Its H.Q. are at Lhasa, the cap. of Tibet, where the Dalai Lama ('ocean priest' or 'sea of wisdom') resides. Everyone who has taken a vow to attain Buddhahood is a bodhisattva and is repeatedly reborn in order to teach others. The Dalai Lama is the reincarnation of the great bodhisattva Avalokitesvara, the ancestor of the Tibetans, and enjoys supremacy in all temporal affairs. The Tashi Lama, or Panchen Lama, the incarnation of Amitabha, is regarded as the great spiritual teacher, and though in theory he holds the same rank as the other grand lama, virtually he is less powerful. On the death of either his spirit passes into the body of a male child, who is ascertained by means of the oracles, prayer, and the drawing of lots. Next in rank to the grand lamas are the Chutuktus, who correspond to the cardinals of the Rom.

Catholic Church. The Chubul Khans, or priests, are also incarnations, and have under them 4 orders of lower clergy. There are numerous lamaseries which are the educational as well as the religious institutions of Tibet. At the head of each is a living Buddha in the person of a Chubul Khan. The worship of Buddha and of spirits and saints takes the form of incantations and the beating of diverse musical instruments. A person who is dying must be attended by a lama, so that his spirit may not wander restlessly, but find a happy dwelling-place in some other human form. See C. F. Köppen, *Die Lamaische Hierarchie und Kirche*, 1859; L. A. Waddell, *The Buddhism of Tibet, or Lamaism*, 1895; P. Landen, *Lhasa*, 1906; A. H. Francke, *History of Western Tibet*, 1907; E. Amundsen, *In the Land of the Lama*, 1910; C. Bell, *Tibet Past and Present*, 1924, and *The Religion of Tibet*, 1932; A. K. Gordon, *Iconography of Tibetan Lamaism*, 1939.

**La Mancha**, see MANCHA, I.A.

**Lamarck, Jean Baptiste Antoine Pierre de Monnet, Chevalier de** (1744-1829), Fr. naturalist, b. Bazentin, Picardy. In 1760 he entered the army and won great distinction, but owing to illness he was obliged to leave the service, and subsequently devoted himself to the study of natural science. In 1778 he pub. his *Flora française*. In 1781-2, as tutor of Buffon's son, he visited most of the famous botanical gardens of Europe, and on his return began his elaborate series of contributions to botany, i.e. the *Dictionnaire de botanique* and *Illustrations de genres* (pub. in the *Encyclopédie méthodique*, 1785). In 1788 he became custodian of the Jardin du Roi, and, on its reconstruction in 1793, was appointed prof. of zoology. In 1809 he pub. his *Philosophie zoologique*, and between 1815 and 1822 his *Histoire des animaux sans vertèbres* (7 vols.). See also LAMARCKISM. See A. S. Packard, *Lamarck, the Founder of Evolution*, 1902; lives by G. F. Kühner, 1913, and R. Perrier, 1925.

**Lamarckism**, philosophical concept of evolution in which is postulated the theory that evolution is a direct result of such causes as heredity, adaptation, and change of environment. In 1809 Lamarck in his *Philosophie zoologique* stated that nature in bringing forth all kinds of animals improved their organisation gradually, and that these animals were subject to the influence of their environment and were modified in form and habits by this influence. Lamarck assigns as the chief causes of such transformation the use and disuse of particular organs during long periods and the transmission by heredity of such changes. He alleges, for example, that birds which were forced to seek food from water gradually adjusted their forms to the necessity. He rejected the explanation of change of type by great geological changes, and likewise denied the truth of such statements common up to the time of Lyell that some 'vital force' was responsible for the gradual development of type. Instinct, he claimed, was a result of inherited characteristics of

habit, proceeding to the conclusion that cellular tissue is the parent of all organic things and the nervous system is the *vera causa* of all acts of intelligence, and that the will is therefore never wholly free. His theories were attacked vigorously at the time of their pub., though prejudice rather than science informed such opposition; but, with the great interest aroused by Darwin's later discoveries, a mass of support was brought to his teaching, particularly in America, and it is now claimed that Darwin's doctrine of natural selection is strengthened more by Lamarck's conclusions than by Darwin's own collected evidence, which is trans. as manifestations of chance as opposed to cause and effect. In 1876 Darwin himself admitted that further research led him to identify himself with Lamarck's earlier statement that evolution was a result of environment, and it seems there is some justification for the claims of Lamarck's disciples that, whilst Darwin revealed only one aspect of evolution, Lamarck revealed the formations which bear the structure of natural selection. If recent work by the Russian school of plant breeders under Lysenko (q.v.) were confirmed, it might provide support for L. It is clear that the theory of heredity known as Mendelism (q.v.), and BREEDING AND HEREDITY is based on very firm ground, and there seems no place in it for L. See F. Buchner, *Last Words on Materialism*, 1901; E. Haeckel, *Das Weltbild von Darwin und Lamarck*, 1909; S. Butler, *Evolution, Old and New*, 1911; C. E. M. Joad, *Mind and Matter*, 1925. See also bibliography for LAMARCK.

**La Marmora, Alfonso Ferrero** (1804-78), lt. general and statesman, b. Turin. He entered the Sardinian Army in 1823, and distinguished himself during the Sardinian war of independence (1848). In that year, and again from 1849 to 1855, he held the portfolio of war, during which period he reconstructed the Sardinian Army. In 1855 he was in command of the Sardinian forces during the Crimean War, and on his return again became minister of war. In 1866 he concluded an alliance with Prussia against Austria, but was defeated by the latter at Custozza, after which he was accused of treason. He wrote in self-defence, *Un po' più di luce sugli eventi militari e politici dell'anno 1866*, 1873, which irritated Bismarck, who charged him with having revealed state secrets, and *Un episodio del risorgimento italiano*, 1876. See G. Massani, *Il generale La Marmora*, 1880; M. Straganz, *Zur Geschichte der 'Stossins-Herr'-Depesche*, 1922.

**Lamartine, Alphonse Marie Louis de Prat de** (1790-1869), Fr. poet, b. Mâcon. L. followed the family traditions by entering the bodyguard of Louis XVIII in 1814. The success of his *Premières Méditations poétiques*, 1820, led to his being appointed attaché to the Fr. embassy at Naples, and during the supremacy of the Bourbons he occupied sev. important diplomatic posts. His *Nouvelles Méditations poétiques*, 1823, *La Mort de Socrate*, 1823, *Le Dernier Chant du Pèlerinage de*

*Childe-Harold*, 1825, and *Harmonies poétiques et religieuses*, 1829, led to his being admitted a member of the Academy (1829). L. was the first to sound a more personal note in his poetry, and to establish a direct bond between himself and his public. In such masterpieces as *Le Lac*, *L'Isolément*, *L'Automne*, the background of nature is in perfect harmony to the mood evoked. A long-projected voyage to the E. led to the *Voyage en Orient*, 1835 (in prose). His *Jocelyn* (hist. of a country parson) was pub. in 1836, *La Chute d'un ange* in 1838, and *Les Recueils poétiques* in 1839; but during this period it was as an orator, not as a poet, that he enjoyed the greatest popularity. In 1835 he was elected 'député' for Bergues, from 1837 to 1848 he was 'député' for Mâcon, and at the revolution of Feb. 1848 he was considered 'the man of France,' as the defender of the 'tricolour' against the 'rouges.' In the provisional gov. he wished to play the role of a Moderate, and lost his popularity, securing very few votes in his candidature for the presidency of the rep. After the *coup d'état* of Dec. 1848 he retired permanently from public life. In his retirement he wrote a series of novels: *Raphaël*, 1849, *Les Confidences*, 1849, *Les Nouvelles Confidences*, 1851, and *Graziella*, 1852. Under the empire he fell into great poverty and wrote such prose works as *Cours familier de littérature*, 1856, and inferior poetry, *Les Visions*, 1854, to support himself. In 1868 he was voted a generous pension by the gov., but his privations had worn him out, and he did not long enjoy it. In addition to the works already mentioned, he wrote *Histoire des Girondins*, 1847, *Trois mois au pouvoir*, 1848, *Histoire de la révolution de 1848*, 1849, *Geneviève*, 1850, *Le Tailleur de pierres de Saint-Point*, 1851, *Histoire de la restauration*, 1851-2, *Histoire des constituants*, 1854, *Histoire de la Turquie*, 1855, *Histoire de la Russie*, 1856, all in prose, and the tragedy *Toussaint Louverture*, 1856. His *Œuvres complètes* were pub. by Didot in 14 vols., 1848-50. See P. Hazard, *Lamartine*, 1925; J. Baillon and E. Harris, *État présent des études Lamartiniennes*, 1933; M. Bouchard, *Lamartine ou le sens de l'amour*, 1940; A. J. George, *Lamartine and Romantic Unanimism*, 1940; H. Guillemin, *Lamartine, l'homme et l'œuvre*, 1940; J. Lucas-Dubreton, *Lamartine*, 1951. See also Mme Lamartine, *The Heart's Memory*, 1951.

**Lamb, Charles** (1775-1834), essayist, b. Crown Office Row in the Temple, London. He was educ. at Christ's Hospital, and the best record of his school-days will be found in his own essays, 'On Christ's Hospital and the Character of the Christ's Hospital Boys' and 'Christ's Hospital Five and Thirty Years Ago.' He was happy there, where he made the acquaintance, which ripened into friendship, of Samuel Taylor Coleridge. L. left the school in the winter of 1789, and in 1792 was appointed to a clerkship in India House, where he was employed for 30 years. His salary was small, and he had to contribute to the

maintenance of his family, with whom he lived, but he seems to have been fairly contented. The serenity of his mind was, however, rudely disturbed in 1796, when his sister Mary, in a fit of ungovernable temper, killed her mother with a carving-knife. A verdict of temporary insanity was brought in, and, by the exercise of much kindly influence, the girl was not sent to an asylum, but was mercifully



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handed over to the custody of her brother Charles, who lived with her for the whole of his life. Insanity was in the blood of the family, for in the winter of 1795-6 L. himself was confined for 6 weeks.

The first appearance of L. in print was in the latter year, when Coleridge, in the *Poems on Various Occasions*, included 4 of his sonnets. In 1798 was issued *Blank Verse*, by Charles L. and Charles Lloyd. His next pub. was *A Tale of Rosamund Gray and Old Blind Margaret*, 1798. Soon L. began to augment his income by contributing to the periodicals and newspapers, and in 1802 he printed his blank-verse play, *John Woodvil*, a tragedy. He was now living with his sister in King's Bench Walk; there, and afterwards in Inner Temple Lane, they resided for 18 years. In 1805 the farce, *Mr H.*, was produced, and damned, at Drury Lane; but 2 years later Godwin brought out the famous *Tales from Shakespeare*, written by L. and his sister, which was at once successful, and brought in its train many welcome offers of hack-work. L. gradually began to develop the vein that

reached its greatest heights in the *Essays of Elia*, 1823, and he wrote in this style for Leigh Hunt's *Reflector* and for the *Gentleman's Magazine*. A new periodical, the *London Magazine*, was started in 1820, and L. was an early contributor, his first paper, 'Recollections of the South Sea House,' being signed 'Elia.' He wrote for the *London Magazine* regularly, and in 1823 collected these essays. In Mar. 1825 he was retired with a pension from India House on the grounds of ill health. 'After thirty-three years' slavery,' he wrote to Wordsworth, 'here am I, a freed man, with £441 a year for the remainder of my life.' He did various miscellaneous work during the next years. In 1830 appeared *Album Verse*, in the following year *Salon in Search of a Wife*, and in 1833 *The Last Essays of Elia*. His health now failed, erysipelas supervened, and he d. on 27 Dec. 1834. One of the brightest features in these last years was the friendship and companionship of Emma Isola, whom L. and his sister Mary had adopted, and whose marriage in 1833 to Edward Moxon, though welcomed by L. with characteristic unselfishness, left him more than ever alone. L. was buried in Edmonton churchyard. His sister survived him for 13 years.

The essays of L.—and it is by his essays that he takes the high place in literature that is his—are universally read and admired. Their humour, their literary finish, which never suggests the burning of midnight oil, their individuality, each and all endear them to countless thousands, for if L. is one of those writers who peculiarly appeal to their brother-authors, he is one of such writers who appeal also to the larger public—a combination rare among essayists. In all his best writings his personality can be detected, and his personality is very attractive. The hard-working clerk who devoted his life to the care of his deranged sister is one of the most pathetic pictures in the annals of literature, and it is small wonder that Thackeray spoke of him as 'Saint Charles.' His personal charm is undoubted, and he numbered among his friends and correspondents men so various as Wordsworth, Southey, Coleridge, Hazlitt, Hood, Leigh Hunt, and Procter. Indeed to know him was to love him, and the circle of those who delighted in him was bounded only by the limits of his gregariousness. The most human of men, he was a looker-on at the life that was everywhere around him. He was in the world, but never quite of it. He was always detached from reality, and had a curious rich vein of fantasy that often revealed itself both in his essays and in his delightful, intimate letters. Of his poems, the best known are 'The Old Familiar Faces,' 'Hester,' and 'Parental Recollections.'

There is an authoritative ed. of L.'s works in 7 vols., 1903-5, by E. V. Lucas, who also ed. the *Letters* in 3 vols., 1935, and wrote a life, 1921. Other eds. of the works are by T. N. Talfourd, 1840, E. T. Purnell, 1870, P. Fitzgerald, 1875, Canon A. Ainger, 1899, W. Macdonald, 1902-3,

and H. T. Hutchinson, 1908. See *Lives and studies* by B. W. Procter, 1866; P. Fitzgerald, 1866; W. C. Hazlitt, 1874; F. Masson, 1913; E. Blunden, 1933; E. O. Johnson, 1935; K. Anthony, 1945; also A. C. Ward, *The Frolic and the Gentle*, 1934; J. S. Iseman, *A Perfect Sympathy*; *Charles Lamb and Sir Thomas Browne*, 1937; R. L. Hine, *Charles Lamb and his Hertfordshire*, 1949.

**Lamb, Sir Horace** (1849-1934), mathematician and physicist, b. Stockport, and educ. at Stockport Grammar School, Owens College, Manchester, and Trinity College, Cambridge, where he was second wrangler and a Smith's prizeman, 1872. He was prof. of mathematics at the univ. of Adelaide, 1875-85, at Owens College and the univ. of Manchester, 1885-1920, and a member of the council of the Royal Society at different periods between 1894 and 1922. He was knighted in 1931. He wrote on hydrodynamics, the infinitesimal calculus, sound, higher mathematics, etc.

**Lamb, Mary Anne** (1764-1847), writer, b. London, elder sister of Charles L. (q.v.). Mentally unbalanced, she first gave signs of her desperate condition when in 1796, in a fit of fury, she mortally wounded her mother by stabbing her with a knife. She was tried, and a verdict of temporary insanity was brought in; but instead of being consigned to an asylum, she was so fortunate as to be handed over to the custody of her brother, who took charge of her so long as he lived. They stayed always together, went about together, and were devoted to each other. Charles, if sometimes he found the task of looking after her irksome, never repined. In 1807 she assisted him in the preparation of the *Tales from Shakespeare*, and while he wrote about the tragedies, she dealt with the comedies. She helped her brother to educate his ward, Emma Isola, who made her home with them until 1833, when she married Edward Moxon, the publisher. Mary L. survived her brother about 13 years, and d. in St John's Wood, London. See life by Mrs A. Gilchrist, 1883; also G. G. Frend, *The Lambs, Fanny Kelly, and some Others*, 1926; W. R. Riddell, *The Tragedy of Mary Lamb*, 1928; E. V. Lucas, *The Letters of Charles Lamb, to which are added those of his Sister, Mary Lamb*, 1935.

**Lamb, William**, see MELBOURNE, 2nd VISCOUNT.

**Lamb, see FUR.**

**Lamballe, Marie Thérèse Louise, Princesse de** (1749-92), daughter of the Prince of Savoy-Carignano, b. Turin. In 1767 she married Stanislaus, Prince of L. who d. the next year. She was the devoted companion of Marie Antoinette, and was appointed by her superintendent of the royal household. In 1792 she was imprisoned with her mistress in the Temple for a week, then removed to La Force and beheaded, and her head, on a pike, was placed in front of the queen's apartments.

**Lamballe**, tn in the dept of Côtes-du-Nord, France. It has a 12th-cent. church and an anct abbey. Pop. 5600.

**Lambarde, William** (1536-1601), jurist and antiquary, b. London. In 1556 he was admitted into the Society of Lincoln's Inn, and in 1568 he pub. a collection and trans. of Saxon laws. In 1570 he was living near Greenwich, where he founded a hospital for the poor in 1574. His best-known book, *A Perambulation of Kent*, 1576, was the first co. hist. pub. in this country. In 1578 he became a bencher of Lincoln's Inn, and in 1579 a magistrate of Kent, publishing in 1581 a manual for justices of the peace entitled *Eirenarcha*. In 1600 he became keeper of the Tower records.

**Lambert, Frederik Rudolph**, see OAVAN.  
**Lambayaque**: 1. Dept of NW. Peru, with an area of 4614 sq. m. It is very dry, and a large portion is desert waste, but the L. and other rvs. permit seasonal irrigation. Cap. Chiclayo. Pop. 238,000.  
2. Tn in the above dept, 7 m. from the mouth of L. R. It contains a fine cathedral and college. It is an important centre for rice, sugar, and cotton. The chief manufs. are textiles and soap; quinine is also exported. Pop. 7000.

**Lamber, Juliette**, see ADAM, JULIETTE.  
**Lambert, Constant** (1905-51), composer, conductor, and critic, b. London, son of G. W. Lambert, A.R.A., educ. at Christ's Hospital and the Royal College of Music. He early became one of the most promising of the younger school of Eng. composers of the time. His *Romeo and Juliet* ballet was produced for Diaghilev at Monte Carlo in 1926, and was followed by *Pomona* at Buenos Aires in 1927. He became musical director of Vic-Wells ballet and was an excellent concert and operatic conductor. His best known work, *Rio Grande*, 1929, is an adaptation of jazz idiom to serious music for chorus, pianoforte, and orchestra. Other compositions include *Music for Orchestra*, 1931, *Summer's Last Will and Testament*, 1936 (masque for chorus and orchestra), *Horoscope*, 1937 (a ballet for Sadler's Wells), also piano sonata, piano concerto, Chinese songs, etc. He wrote *Music Ho! A Study of Music in Decline*, 1934.

**Lambert, Johann Heinrich** (1728-77). Ger. physicist, mathematician, and astronomer, son of a tailor, and educ. at a free school in Mulhausen, where he was born. Editor of *Ephemeris*. Much favoured by Frederick the Great. He d. early of tuberculosis. Conducted researches in heat and light and discovered a method of measuring the intensity of light, the 'lambert,' a unit of brightness, equal to 1/4 candles per sq. cm., being named after him. (See his *Photometrie*, 1760; *Pyrometrie*, 1779.) His mathematical researches were also useful, but were carried much further by his contemporaries; thus he demonstrated the irrationality of  $\pi$ , but the method of proof given by Legendre was simpler. His geometrical researches are valuable, notably the conception of hyperbolic functions in trigonometry. See on this his work *Die freie Perspective*, 1759-1774. His research in astronomy is reflected mainly in his theorem on the

motion of the planets. See M. Steck, *Johann Heinrich Lambert: Schriften zur Perspektive*. 1943.

**Lambert, John** (1619-94), general, b. Calton Hall, Kirkby Malham, Yorks. At the outbreak of the Civil war he joined the army of the Parliament, took part in the battles of Nantwich and Bradford, and greatly distinguished himself at Marston Moor (1644). He was major-general and second in command of the army during the war with Scotland, 1650-1. He fought at Preston and Dunbar, and commanded the right wing at Worcester (1651). He supported Cromwell's assumption of the Protectorate in 1653 and was responsible for the constitution on which it was first based—*The Instrument of Government*. But he opposed the extension of the Protector's powers in 1657 and was deprived of his commands. He took a leading part in the overthrow of the Protector Richard in 1659. He was mainly responsible for the army's expulsion of the recalled Rump parliament in the autumn of that year and served on the committee of safety through which the army ruled for a short period until Monck restored parl. gov. He was suspected, probably justifiably, of aiming at supreme power himself. At the Restoration he was arrested and banished to Guernsey. See life by W. H. Dawson, 1938.

**Lambeth** (meaning 'harbour where lambs were shipped'), parl. and metropolitan bor. of London, on the S. bank of the Thames, opposite Westminster. It includes the dists. of Brixton, Kennington, and Vauxhall (q.v.). L. Palace, on the riv. front, has been the residence of the archbishops of Canterbury since c. 1197, and the remarkable group of buildings exhibits styles from about that date to the early 19th cent. The late 17th-cent. Great Hall, housing the valuable library, has a fine hammer-beam roof. E. of the palace is St Thomas's Hospital, erected 1868-71, and beyond, on the E. side of Westminster Bridge, is County Hall (q.v.). The riv. frontage between County Hall and Waterloo Road was chosen as the site of the Festival of Britain exhibition in 1951. The permanent feature of that festival, the Royal Festival Hall, was a concert hall in a contemporary style with seating for about 3000. Near the hall the National Film Theatre was inaugurated in Oct. 1957. The W. part of the site was used as the London Airport Terminal until 1957, when a new terminal was opened in Kensington. Industrialisation in L. began in the 1670's with glassworks, and in the 19th cent. had slums grew up, but much rehousing has been carried out since the Second World War. The chief industries are soap, chemicals, pottery, and earthenware. L. returns 3 members to parliament. Area 4083 ac.; pop. 226,200.

**Lambeth Conferences**, assemblies of Anglican bishops of the U.K., the Brit. dominions and colonies, America, and certain Anglican dioceses in foreign ter., held periodically at Lambeth Palace. The

idea was suggested by Bishop Hopkins of Vermont in 1851. The first assembly met at the invitation of Archbishop Longley in 1867. Out of 144 bishops of the Anglican Communion, 76 attended the conference. Many Anglican bishops, including the Archbishop of York, refused to attend on conscientious grounds, and Dean Stanley declined to allow the closing service of the conference to be held in Westminster Abbey. At the fifth conference, convened (1908) by Archbishop Davidson (see DAVIDSON, RANDALL, LORD), 242 bishops were present. At the eighth, of which Archbishop Fisher was president, in 1948, 326 bishops were present. Matters of urgent and practical interest are discussed, but the conference has not the functions of a synod. See Archbishop R. T. Davidson, *The Lambeth Conferences of 1867, 1878, and 1888*, 1896, and *Conference of Bishops of the Anglican Communion, Encyclical Letter, etc.*, 1897, 1908, and *Report of the Lambeth Conference*, 1920, 1930, 1948, 1958.

**Lambrequin**, see MANTLING.

**Lambton** (afterwards Meux), Sir Hedworth (1856-1929), admiral, third son of the second Earl of Durham. Joining the navy in 1870, he was present at the bombardment of Alexandria and the battle of Tel-el-Kebir, 1882, and became private secretary to the first lord of the Admiralty, successively Earl Spencer and Lord Goschen, 1894-7. He commanded the naval brigade in the defence of Ladysmith during the Boer War. He contested Newcastle in the Liberal interest in 1900; was in command of the royal yacht, 1901-3; second in command of the Channel fleet, 1903; rear-admiral of the cruiser div. of the Mediterranean fleet, 1904-6. He was awarded the K.C.V.O., 1906, and the K.C.B. in 1908, being appointed to command the China station in that year. He became vice-admiral 1911 and commander-in-chief at Portsmouth, 1912-16. In 1911 he assumed the name of Meux. He became admiral of the fleet, 15 Mar. 1915, and was one of the few to hold that high rank in active command. M.P. 1916-18.

**Lambton, John George**, see DURHAM, 1st EARL OF.

**Lamellibranchiata**, see BIVALVES.

**Lameness, Groggy**, see NAVICULAR DISEASE.

**Lamennais**, Hugues Félicité Robert de (1782-1854), Fr. abbé and philosophical writer, actually named La Mennais, b. St Malo, Brittany. His horror at the revolution was occasioned less by his monarchic leanings than by his dismay at the overthrow of religion, and is expressed in his *Réflexions sur l'état de l'église en France pendant le 18<sup>ème</sup> siècle et sur sa situation actuelle*, pub. anonymously in 1808. At the commencement of the 'Hundred Days' he fled to London, where he fell under the influence of the Abbé Carron, who induced him to take Holy Orders on his return to Paris. The first vol. of his great work, *Essai sur l'indifférence en matière de religion*, 1817, stirred all Europe by its violent denunciation of

religious indifference. After the revolution of 1830 he founded, in conjunction with Montalembert and Lacordaire, the paper *L'Avenir*, with its motto 'Dieu et Liberté,' advocating an aggressive democracy. His appeal to the Pope to support the paper against the Conservative bishops failed, and L. completely severed himself from the Church, and was condemned by the encyclical *Mirari Vos* in 1832. His remarkable *Paroles d'un croyant*, 1834 marked his new attitude, and henceforward he belonged to the extreme Democratic party, attacking all the opinions which he had hitherto upheld. At the revolution of 1848, after a period of imprisonment for his republican activities, he sat as a representative on the extreme left in the assembly until the *coup d'état* of Napoleon III in 1851 finally crushed his hopes for the sovereignty of the people. Among his later writings were *Le Livre du peuple*, 1837, and *Esquisse de philosophie*, 1840. Two so-called *Œuvres complètes de Lamennais* appeared in 1836 and 1844 and *Le Portefeuille de Lamennais*, 1816-36, in 1930. See C. Sainte-Beuve, *Portraits contemporains*, 1846; and lives by P. Mercier, 1894; C. Boutard, 1905; F. Duine, 1922; C. Maréchal, 1925; R. Valléry-Radot, 1931; also L. Ahrens, *Lamennais und Deutschland*, 1930, and G. Goyan and P. de Lallemant, *Lettres de Montalembert à Lamennais*, 1933.

**Lamentations**, *The Book of* (Heb., 'Echab—its first word), consists of 5 poetical laments dealing with the various calamities which the Jews underwent after the capture of Jerusalem by the Chaldeans in 586 bc. The first 3 dirges are alphabetical acrostics, each containing 22 verses. The fourth is constructed on the same plan, but with the verses arranged in groups of three, each having the same initial letter. There are thus 66 verses in all. The fifth lament, which takes the form of a prayer, is not acrostic, but contains the same number of verses as each of the first three. Late tradition (e.g. LXX) ascribes Lamentations to the prophet Jeremiah. See commentaries by J. Chapman, 1908; A. S. Peake, 1911; Goldman (in *The Five Megilloth*, ed. A. Cohen), 1946.

**Lamia**, legendary queen of Libya loved by Zeus, whose jealous wife, Hera, robbed L. of her children, in revenge for which L. seized and killed every child she could find. In later Gk legend she was a female bogey, and passed into Rom. mythology, where the Lamiae were vampires, in the form of beautiful women who enticed young men to their arms and fed on their blood. So L. is represented by Goethe in *Die Braut von Corinth* and by Keats in *Lamia*. See Plutarch, *De Curiosis*; G. F. Abbott, *Macedonian Folklore*, 1903; J. C. Lawson, *Modern Greek Folklore and Ancient Greek Religion*, 1910.

**Lamia**, L. Aelius (d. ad 33), Rom. magistrate, consul in ad 3 and prefect of Rome in ad 32. He was a friend of Horace, who dedicated an ode to him (l. 28). See A. W. Verrall, *Studies in Horace*, 1884.

**Laminaria**, genus of large brown seaweeds of the family Laminariaceae, some of which (*L. digitata*, *L. cloustoni*, and *L. saccharina*, called tangle-weeds) are edible, but more generally useful in the manuf. of kelp (g.v.) and manure. The ribbon-like *L. digitata* attains to a great length. These seaweeds provide the kelp and manure from which are derived chemical salts by burning, the ash yielding soda, iodine, and potash.

**Lamination**: 1. Term in geology for a special formation in the beds of clay or shale strata, in which the bed is formed of thin layers or plates, called laminae, lying parallel to its plane and separating easily when exposed to the weather. They may be the result of separate layers of deposit being placed one on top of the other in successive periods, or they may be due to the pressure of the later deposits.

2. Industrial process by which successive layers of thin materials—paper, glass, wood veneers, etc.—are banded together by adhesives (q.v.).

**Laminitis**, see HOISE (DISEASES).

**Lamlash**, vil. of Arthan is., Bute co., Scotland, 3 m. S. of Brodick, a holiday resort. Pop. 1000.

**Lammas Day**, or *The Feast of the Wheat Harvest*, one of the oldest of church festivals, occurring on 1 Aug. The name is probably derived from the A.-S. *hlaf-maesse*, or 'loaf mass'; it was customary to offer loaves of bread made from the first fresh wheat.

**Lammas Lands**, lands which were enclosed during the growth of corn and grass, but open for pasture during the rest of the year. Upon Lammas Day (1 Aug.) the fences were taken down from the corn fields and on Old Midsummer Day (6 July) from grass fields.

**Lammermuir Hills**, or *Lammermoors*, range of hills in E. Lothian and Berwickshire, Scotland, extending in an ENE. direction from the vale of Gala Water to St Abb's Head on the N. Sea. The chief summits are Melkie Says Law (1749 ft) and Lammer Law (1733 ft).

**Lamond, Frederic** (1868-1948), Scottish pianist, b. Glasgow. He received lessons from Liszt and Bülow in Germany, where he spent most of his life, teaching in Berlin. But he toured extensively as a concert pianist, being especially a thoughtful interpreter of Beethoven. He was prof. at The Hague Conservatory in 1917, and at the Scottish National Academy of Music from 1939.

**Lamont, Johann von** (1805-79), Ger. astronomer and magnetician, b. Braemar, Aberdeenshire. He was sent to be educ. at the Scottish monastery in Regensburg and never returned to Scotland. In 1840 he estab. a magnetic observatory at Bogenhausen. He executed comprehensive magnetic surveys of Bavaria, France, Spain, N. Germany, and Denmark (1849-58), the results of which were pub. in 3 vols. (1854-9). He announced the discovery of a magnetic decennial period in 1850, and his discovery of earth currents in 1862, of which his *Handbuch des Erdmagnetismus*, 1849, is the standard



text-book. He was appointed prof. of astronomy at the univ. of Munich in 1852, and prepared his 11 zone catalogues of 34,674 stars (1866-74).

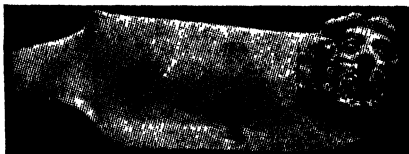
**Lamoriçière, Christophe Léon Louis Juchault de** (1806-65), Fr. general and politician, b. Nantes. He distinguished himself at Isly (1844), and effected the capture of Abd-el-Kader in 1847. He was minister of war under Cavaignac. L. was a leading opponent of Louis Napoleon, who exiled him in 1851. In 1860 he accepted the command of the papal army,

the earliest (c. 20,000 bc). It is made of yellowish-grey limestone, while the L. of the Magdalenian period (c. 12,000 bc) found in the S. of France, and now in the museum of St Germain-en-Laye, near Paris, has a definite spout and the head of an ibex engraved on the base, and is made of sandstone. In Britain the well-known chalk L.s of the Neolithic flint mines near Cissbury, Worthing, Sussex (now in the museums of Lewes, Brighton, and the Brit. Museum), date from about 2000 bc.

In the Near E. the L. had an indepen-

#### ALABASTER LAMP OF THE SARGONID PERIOD

Reproduced from 'The Development of Sumerian Art,' by C. Leonard Woolley, published by Faber & Faber Ltd.



but was completely defeated by the Italians at Castelfidardo. His sentence of exile was revoked in 1857, and he d. in retirement near Amiens. See lives by E. Keller, 1873; Flornoy, 1903; P. J. L. Azan, 1925.

**La Motte, Antoine Houdar de** (1672-1731), Fr. poet and dramatist, b. Paris. His first comedy, *Les Originaux*, 1693, was a failure, and he contemplated entering a monastery, but the success of his ballet, *L'Europe galante*, 1697, led to a series of successful operas and tragedies, of which the most famous is *Indes de Castro*, 1723. Other works are a verse trans. of the *Iliad*, 1714, founded on Mme Dacier's trans., 1699, *Odes*, 1707, *Réflexions sur la critique*, 1715, and *Fables*, 1719. He played an important part in stimulating literary reform in the 18th cent., and in the quarrel of the Ancients and Moderns he was, with Fontenelle, one of the foremost to side with the Moderns. He was elected to the Fr. Academy in 1710. See P. Dupont, *Un poète philosophe, Houdar de la Motte*, 1898.

**La Motte Fouqué, see FOUQUÉ, FRIEDRICH HEINRICH KARL DE LA MOTTE.**

**Lamoureux, Charles** (1834-99), Fr. violinist and conductor, b. Bordeaux. He studied at the Paris Conservatoire, and in 1873 began to give exceptionally enterprising concerts of choral and orchestral music. In 1881 he inaugurated the *Nouveaux Concerts*, better known as *Concerts Lamoureux*, in continuation of the work begun by Colonne. See H. Imbert,

**Lamp.** The Eng. word L. is derived from the Gk *lampas*, a torch, which in its turn is connected with *lampein*, to shine. As early as the Stone Age man appears to have discovered that a wick soaked in and fed by fat would provide a lasting light, and by the hollowing out of a stone to hold the fat and the wick the first L. was created. The earliest stone L.s are crude and difficult to identify with certainty, but the bowl-shaped example found at Istaitz, in the Lower Pyrenees (now in a private Fr. collection), is probably among

the earliest, in the sea-shell. Though the shell's first use as a L. cannot be traced back at present beyond c. 5000 bc, the discoveries at Ur (q.v.), Mesopotamia (now in the Brit. Museum), prove that conch shells were used as L.s and by 4000 bc L.s carved in alabaster, a local stone, were made in the shape of these shells. The earliest metal L.s were also found at Ur, made of gold, silver, and copper, some of them being derived from the shell-L.s. One bronze L. from Ur, in the shape of a crocodile, foreshadows the late Rom. idea of making metal L.s in animal forms. Copper L.s shaped like a kind of shell were found beneath a Sargonid palace at Eshnunna and dated c. 2700 bc.

**Pottery L.s** found at Tell Duweir, Palestine, by the Wellcome expedition in 1937-8, belonged to the third millennium bc and were extraordinary because not only were they made of finer pottery than the later examples found but they were almost square, with four spouts (for four wicks) and flat bases; the later examples are in the form of a shell, usually the scallop, with rounded bases as in shells. The later Phoenician pottery L.s of the middle of the second millennium bc are of shell form, and in Palestine the pottery L.s of the Canaanite period (second millennium bc) closely follow the Phoenician type, but from the time of Solomon onwards they developed flat bases, a deeper shape, and a nozzle for the wick. How early L.s were made in Egypt is entirely conjectural, but they were probably a simple open saucer type in which the wick floated, and are consequently scarcely recognisable as L.s even where they have survived; particularly if, as is probable, they were only sun-baked clay. The Chinese bronze examples of the late Chou dynasty (4th cent. bc) are saucer shaped or box shaped and in some cases have short legs. The early stone L.s of the Minoan culture on Crete (c. 2500-1400 bc) show a technique all their own. They are shallow decorated bowls of considerable size set on pedestals; a

rod gypsum example over 2 ft high is in the Brit. Museum. Minoan open saucer pottery L.s also exist, some with a lip or spout, others with a separate nozzle, and the earliest L.s with handles are also products of this remarkably developed and artistically advanced Minoan culture.

The Gk L. was not derived from the Phoenician shell type but from the open saucer type; whether it was a local development from the stone L.s of the Gk 'Dark Ages' is still uncertain. It quickly improved after the 6th cent. BC;



Ashmolean Museum

A LAMP IN TERRA-COTTA OF THE FIRST OR SECOND CENTURY A.D.

The decoration shows basilica and boatmen in relief: conjectured Roman.

it was thrown on the potter's wheel, the rim was curved inwards to prevent spilling, a handle was added, the nozzle was bridged, and eventually the 'saucer' became totally enclosed as in the late Gk and Rom. L.s. From the 6th to 4th cents. BC these L.s were mostly glazed on the outside, but from the 3rd cent. BC a coating of slip took its place. In the 2nd cent. BC the method of production changed to moulding and by the following cent. makers' names began to appear, though names are predominantly a feature of the Rom. period.

The Rom. pottery L. derives from the Gk and, though it developed distinctive features, such as the concave top and the moulded ornamentation, it is basically the same. Although Hellenic bronze L.s survive it was not until the Rom. period,

especially from the 1st cent. AD, that the use of metal L.s became common, employing a variety of forms (animals, fishes, figures, etc.). Many of the surviving examples belong to the early Christian and early Byzantine eras (4th to 7th cents. AD) and have Christian symbols and emblems as decoration. Another Byzantine type of pottery L. appearing about the 8th cent. seems to derive from the Assyrian (722-626 BC) and Parthian (200 BC-AD 200) L.s. They are all more like small tea-pots, with globular bodies and nozzles (or spouts) projecting from near the base on one side. This type continues in the early medieval Arab L.s with a blue or green glaze.

Examples of glass L.s of the 4th and 5th cents. AD found in the Fayum, in Egypt, seem to be among the earliest made in this medium. They are of the float-wick type (like the saucer-shaped pottery L.s) and as early as the 6th cent. were developed into a chandelier device. The glass L. spread through the Byzantine world, both in the E. parts (e.g. finds from the sites of Syrian churches) and the W. areas, where its spread was undoubtedly aided by its adoption by the early Christian Church for a 'sanctuary L.' in front of the Sacrament. Anglo-Saxon glass bowls found at Faversham (now in the Brit. Museum) were almost certainly float-wick L.s in the same tradition. Medieval MS. illuminations of the 11th to 14th cents. depict the same type of glass L.s, and in the Renaissance the metal pendant holders for these L.s reach their height of artistic ingenuity.

See H. B. Walters, *Catalogue of the Greek and Roman Lamps in the British Museum*, 1914, and F. W. Robins, *The Story of the Lamp*, 1939.

**Lamp Black**, black pigment consisting of finely divided carbon produced by the incomplete combustion of coal-tar creosote or petroleum fuel oil; the finest being obtained from the former material. It is used mainly in the manu. of printing inks and as a pigment for oil painting.

**Lamp-shell**, genus of Brachiopods.

**Lampedusa**, It. is., largest of the Pelagian Is. (q.v.). Its centre is the tn of L. (pop. 4100) on the S. coast. In the Second World War the is. surrendered to the Allies on 12 July 1943, after a bombardment from air and sea (see ITALIAN FRONT, SECOND WORLD WAR CAMPAIGNS ON). Area 11½ sq. m.; pop. 3146.

**Lampeter**, or **Lampeter Pont Stephen**, municipal bor., assize, and mkt tn of Cardiganshire, Wales, situated on the R. Teifi. The name Pont Stephen is derived from an ant. stone bridge over the riv., which was constructed for King Stephen. St David's College (1822-7) is affiliated to the univs. of Oxford and Cambridge. Pop. 2200.

**Lampman**, **Archibald** (1861-99), Canadian poet, b. Morpeth, Ontario. Educ. at Trinity College, Toronto, he entered the gov. post office service. His prin. poetical works are *Among the Millet and other Poems*, 1888, *Lyrics of Earth*, 1895, and *Alcyone*, 1899. See memoir by D. C.

Scott, 1900, and life by C. Y. Connor, 1929.

**Lamprey**, species belonging to the group Hyperoartii of the Cyclostomata (q.v.), the other group comprising the hagfishes (q.v.). L. are fish-like vertebrates with median, but not paired, fins and with a round, jawless mouth armed with a muscular, tooth-studded tongue. There are 7 pairs of gill pouches and the single, median nasal opening is on top of the head near the eyes. The fertilised eggs hatch into small, worm-like larvae known as prides or ammocoetes, these living in burrows in the mud. After 3 or 4 years this larva changes into the adult form. All L.s. pass this early part of their lives in freshwaters, the marine species, such as *Petromyzon marinus* of the N. Atlantic, migrating into the rivs. to spawn. About half the species of the main L. family, Petromyzonidae, live permanently in fresh waters and are dwarfed, non-parasitic types with weak teeth. The larger, parasitic species attach themselves to other fishes and rasp off pieces of flesh by the piston-like motions of their muscular, toothed tongues. The species found in Brit. waters are the sea L., *Petromyzon marinus*, which grows to a length of about 3 ft., and the smaller riv. L., *Lampetra fluviatilis* and brook L., *L. planeri*.

**Lampsacus**, anct Gk colony in Mysia, Asia Minor, on the Hellespont and opposite the modern Gallipoli. It was celebrated for its wine, and was the chief seat of the worship of Priapus. The modern vil. of Lapsaki probably stands near its site.

**Lampyrus**, see GLOW-WORM.

**Lanark**, royal, municipal and police burgh, and co. tn of Lanarkshire, Scotland, situated on high ground near the r. b. of the Clyde, 31 m. SE. of Glasgow by rail. It is a holiday centre for the falls of Clyde, and has associations with Wm Wallace. There is a golf-course and a racecourse; near by is the Glasgow sanatorium. The chief industries are cotton spinning, druggery and winery weaving, and nail making, and there are cattle and sheep markets. One and a half m. S. is New L., founded by David Dale and Richard Arkwright in 1785, as a cotton-spinning centre. Robert Owen, the social reformer, was manager of the mill from 1799 to 1828. Pop. (inclusive) 8000.

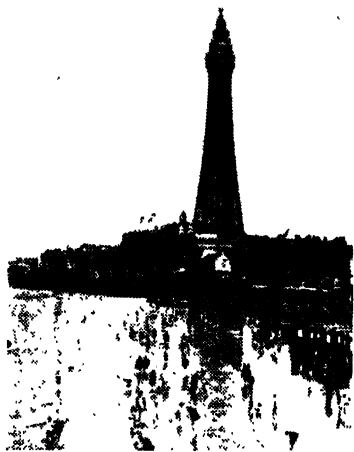
**Lanarkshire**, SW. inland co. of Scotland, bounded N. by Dunbartonshire and Stirlingshire, E. by W. Lothian, Midlothian, and Peebles, S. by Dumfries, and W. by Ayr and Renfrew. Originally part of the ter. of the Celtic tribe of the Dumnonii. L. was never totally annexed by the Romans. It has associations with the patriot Wm Wallace, and Mary Queen of Scots was defeated at Langside in 1568. Claverhouse was defeated by the Covenanters at Drumclog (1679) who in their turn were defeated at Bothwell Brig in the same year. The co. is divided into 3 wards: the Upper (which lies to the S. and includes more than half the co.), the Middle, and the Lower. The greatest elevations are to be found in the

S., Culter Fell (2454 ft) being the highest on the borders, and in L. itself Green Lowther (2403 ft). The valley of the Clyde runs through the co., and the surface slopes gradually from the heights in the S. to the Firth of Clyde in the N.—this riv., with its numerous tribs., drains the co. There are a few small lochs in the N., but the falls of the Clyde at Bonnington, Corra Linn, and Dundaff are famous. Oats are the main crop, and cattle and sheep are reared extensively, also pigs, and the fine breed of draught horses known as Clydesdales. Dairy farming is productive, especially certain kinds of cheese, and fruit farming is carried on in the Clyde valley, strawberries being grown in great quantities. In the N. market gardening flourishes (a considerable amount of glass is used). The main industries are in the coal- and iron-fields, of which Glasgow (Scotland's largest city) forms the centre; shipbuilding at Glasgow, Govan, and Partick; cotton, woollen, and linen manuf. at Glasgow, Rutherglen, Hamilton, and Lanark; engineering at Coatbridge, Kinning Park, and Wishaw; and steel at Cambuslang, Motherwell, and Wishaw. Canals include the Monkland Canal in the N., and the Forth and Clyde Canals in the N. and NW. The co. returns 6 M.P.s, and there are also 16 burgh constituencies (Coatbridge and Airdrie return 1 member; Glasgow returns 15). Area 882 sq. m.; pop. 1,614,363.

**Lancashire**, maritime co. in the NW. of England, bordering on the Irish Sea. The coastline, though flat, with fine stretches of sand, is broken by inlets, of which the largest are Morecambe Bay and the estuaries of the 3 rivs., the Duddon, the Ribble, and the Mersey. Morecambe Bay also divides the dist. of Furness with the is. of Walney from the rest of the co. There are many popular seaside resorts on this coast, the chief of which are Blackpool and Southport. The most important rivs. are the Mersey, into which flow the Irwell and Sankey, and the Ribble, rising in Yorks. and flowing down to Preston, into which flow the Hodder, Calder, and Darwen. The surface of the co. is varied, the N. being hilly, except near the coast, and including part of the beautiful Lake District, Conistown and part of Windermere being in L. The E. boundary is also hilly, taking in part of what is known as the Pennine uplands, the highest point being Pendle Hill (1831 ft). In the N. there are some beautiful stretches of moorland, and along the coast and the R. Mersey there is a plain, once peat mosses, but now partly reclaimed; the largest of these is Chat Moss (q.v.) between Liverpool and Manchester.

L. contains one of the largest of England's coal-fields, covering about 400 sq. m. in its area are included all the big cotton-manufacturing tns., Manchester, Burnley, Blackburn, Wigan, Bolton, and Preston, etc. Fire-clay, sandstone, limestone, slate, particularly a fine blue slate, and salt are quarried. Fire-clay, clay, and stoneware are worked. In Furness red hematitic iron is found. Cattle are

reared in considerable numbers, cows being kept to supply the large demand for milk, and the hill pasturage is good for sheep; oats and wheat are the chief crops. L. is one of the centres of the cotton trade for the world. The industry dates from the 17th cent., though it is not until 1789 that we find steam first used at the mills in Manchester, and a rapid development followed (see CORRON, *The British Cotton Industry*). There is a large manuf. of all implements and machines used for the weaving industry; iron and steel are manuf. at Barrow-in-Furness; there are glass works at St Helens, electrical goods



THE TOWER AT BLACKPOOL, LANCASHIRE

and aircraft at Preston, and leather works at Warrington. There are also numerous alkali, soap, candle, oil, and other chemical works. L. contains the great seaport of Liverpool with its vast shipping trade, and the lesser ports of Manchester, connected with the sea by means of the Ship Canal (1894), Barrow-in-Furness, Preston, and Fleetwood. The co. is one of the cos. palatine, and is part of the Duchy of Lancaster, the office of chancellor of the duchy and co. palatine dating back to 1351. It is divided into 6 hundreds, and returns 64 members to Parliament. It contains some fine ruins and anct churches and is famed for the number of its old co. families. The area is 1887 sq. m.; pop. 5,234,000. See H. Fishwick, *A History of Lancashire*, 1894; *Victoria County History: Lancashire*, 1906-12; J. C. Walters, *Lancashire Ways*, 1932; W. Smith, *Lancashire*, 1941; A. Mee, *Lancashire*, 1942; H. C. Collins, *The Roof of Lancashire*, 1950.

**Lancashire Fusiliers.** The. Raised in 1688 to support William III the regiment

early saw service in the W. Indies, and later at Dettingen (1743), Fontenoy (1745), and Culloden (1746). Wolfe was lieutenant-colonel for a time. It distinguished itself at Minden (1759). It served in the Amer. war, and in 1782 was styled the E. Devon Regiment. It served in Egypt in 1801 and in 1806 it took part in the battle of Maida; it then went to the Peninsula, where it served under Wellington from 1808 (Vimiera) to the end of the campaign in 1814. It formed Napoleon's guard during the last 2 years of his captivity (1820-1), furnished the guard at his residence on the night of his death, and its grenadiers bore him to his grave. Further honours were won in the Crimea, at the battles of Alma and Inkerman, and at the siege of Sevastopol. It went to India in 1857, and took part in the siege and capture of Lucknow during the mutiny. A battalion served in China and Japan during the occupation of the treaty ports after 1863. It took part in Kitchener's advance on Khartoum and his victory at Omdurman. During the S. African war, 1899-1902, it took part in the relief of Ladysmith. During the First World War it raised 30 battalions, which served in France, Flanders, Macedonia, Gallipoli, and Egypt. The name 'Lancashire Landing' in Gallipoli commemorated its bravery in that historic campaign (see also GALLIPOLI CAMPAIGN). During the Second World War 8 battalions were in service in various theatres. At the outbreak the 2nd Batt. went to the W. front with the 4th Div. Three Territorial battalions, the 1st/5th (Bury), 1st/6th (Rochdale), and the 1st/8th (Broughton), soon followed. The 1st/8th and the 10th (Exeter) Batts. sailed to India, where the 1st Batt. had been stationed since the beginning of the Sino-Jap. war. Meanwhile the 2nd Batt. took part in the invasion of N. Africa in 1942. After serving also in the invasion of Sicily and the whole of the It. campaign this battalion was selected from the famous Eighth Army (q.v.) to be the Brit. garrison force in Vienna. It was during the storming of the Gustav line that Fusilier Frank Jefferson won the V.C. The 1st, 1st/8th, and 10th later served in India or Burma; the 11th in Italy; and the 2nd/5th in the battle of Normandy.

**Lancaster, Sir James** (d. 1618), Eng. navigator and statesman, first sailed in an expedition to the E. Indies in 1591, the very lucrative outcome of which resulted in the formation of the E. India Co. In 1600 he commanded the first and very successful fleet of the company to Acheen, etc. L. Sound, a channel 50 m. wide in the Arctic regions, leading from Baffin Bay, between N. Devon and Cockburn Land, and continued W. by Barrow Strait, was named after him by Baffin on account of L.'s voyages in search of the NW. Passage. See *Voyages of Lancaster*, ed. by Sir Clements Markham for the Hakluyt Society, 1877.

**Lancaster, Joseph** (1778-1838), b. London, Quaker educationist, founder of a school in Borough Road where he educ. children free of charge by using older

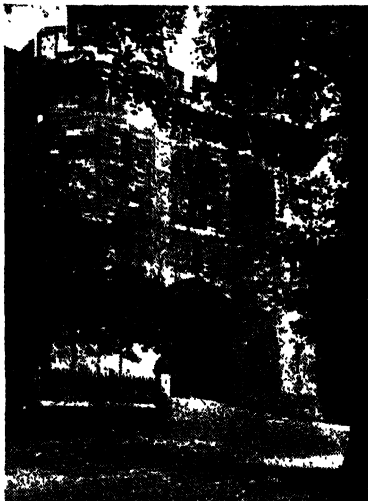
pupils to instruct groups of younger ones. His flair for organisation was such that he ran a school of 1000 children and claimed that, with properly trained monitors, he could train 10,000 pupils to read fluently in a period of 3 weeks to 3 months. His first pamphlet (1803) on *Improvements in Education* outlined his methods of maintaining discipline (which were elaborate) and the teaching of the 3 Rs. His relations with Bell (q.v.) were at first cordial, but the two men and their supporters disagreed on the role the Church should play in education. L. claimed that schools should not be used for the purpose of indoctrination and wished to make education widely available to the poor. An active propagandist, he gained the support of royalty, became intoxicated by success, and aroused the hostility of the estab. Church. Influential Quakers came to his assistance financially and raised funds to found the Royal Lancastrian Society. When its name was changed to the British and Foreign Society, L. objected and soon afterwards, again financially embarrassed, left for the New World. In the U.S.A., S. America, and Montreal, Canada, he tried to establish schools with varying degrees of success. His monitorial system, however, became widely used during the first half of the 19th cent. in the States and to some extent on the continent of Europe. Through encouraging his able pupils to become schoolmasters L. might rightly be regarded as a pioneer of teacher training, and Borough Road Training College for men remains to remind us of his first school of Southwark. L. d. in poverty and obscurity.

**Lancaster:** 1. City, mkt tn, and riv.-port of Lanes, England, and also the co. tn. At the head of the Lune estuary, 7 m. from the sea, 52 m. NW. of Manchester, and 230 m. from London by rail. Situated on rising ground, crowned by its old castle and church, it commands a fine view of the surrounding country and of Morecambe Bay some 3 m. below. The riv. is crossed here by a 5-arched bridge built in 1788, and to the N. of the city a canal is carried over the riv. by an aqueduct.

**History.** L. has a long hist., and even before the Rom. occupation the tn was of some importance. As *Loyn-caestre*, *Lone-castrum*, or *Lunecastrium*, it was fortified by the Romans and traces of their walls are still to be seen. Rom. remains in the shape of Samian ware and tombs leave no doubt that it was a Rom. station of great importance. Before the union of England and Scotland L. was often the quarry of Scots raiders, who on sev. occasions (1314, 1322, and 1389) destroyed the tn. It suffered also in the Wars of the Roses, when it was more or less depopulated, and in the Civil war, when it was captured by Cromwell in 1643, retaken by the Earl of Derby in the same year, and again taken by the parl. troops in 1648. In both Jacobite rebellions, the 'Fifteen and the 'Forty-five, the rebels occupied the tn. L. received its first charter in 1193 from

King John, then Earl of Mortain, and the second in 1199, also from John. Henry II granted the ownership of the tn and castle to his son Edmund, first Earl of Lancaster, in 1267, and they have been part of the Duchy of L. since its creation. The castle devolved by marriage on John of Gaunt and, from the reign of his son Henry IV, it has been vested in the Crown, all the subsequent holders of which have been dukes of L.

The castle which, with the adjacent priory and par. church of St Mary, is the



JOHN O' GAUNT'S GATEWAY,  
LANCASTER CASTLE

dominating feature of L., stands high above the city. Beneath Hadrian's Tower there is evidence of Rom. construction. But the castle as it exists to-day was begun by Roger de Poitou (c. 1094), though the only Norman work remaining is the Lungess Tower, used as a beacon at the time of the Sp. Armada. The gateway, with its massive towers and 9-ft-thick walls, is one of the finest medieval gatehouses in existence. The Gateway Tower was planned by John of Gaunt and, in 1322, a statue of him was erected over the gateway. The gatehouse gives access to what was for some years, and now is again, a prison. The castle contains a court-room in which are held the assizes, quarter sessions, and co. court. The famous 'Lancashire witches' were tried here in 1612, when 17 persons were condemned for witchcraft on the evidence of one boy. In the museum in Hadrian's Tower is a Rom. altar and a varied collection of instruments of torture. The

priory church stands on the N. side of Castle Hill. Although the present edifice is mainly Perpendicular (15th cent.), there has been a Christian shrine here for 13 cents., and it also incorporated the anct Rom. basilica of the Rom. camp. The tower of the priory was built in 1759. The delicately carved canopies of the chancel stalls, dating from about 1340, are probably the finest of their kind in the country. Notable too are the old font cover, the pulpit, the Saxon doorway, and a wealth of monuments, brasses, and stained-glass windows. A striking feature of the church is the memorial chapel of the King's Own Royal Regiment, one of the earliest regimental chapels to be erected. The imposing Rom. Catholic cathedral of St Peter in E. Road was erected in 1859, the estab. of the Rom. Catholic diocese of L. dating from 1924. Remarkable for colouring and workmanship are its chancel roof, frescoes, and canopies.

The tn hall and its surroundings were presented to the tn by Lord Ashton (q.v.) at a cost of £155,000, the architect being E. W. Mountford, designer of the Central Criminal Court, Old Bailey. In the group of buildings known as Storey Institute (after the donor Sir Thomas Storey) are the school of arts and crafts, the technical college, and the art gallery. The L. Royal Grammar School (accommodating 670 boys) was founded as an old 'free grammar school' under the will of John Gardynor of Bailrigg, dated 1472, and was rebuilt in 1682, though it probably existed long before this, perhaps as early as 1235. In 1881 the school was moved to its present site on the outskirts of the city. The public library in Market Square is a modern building opened in 1932. Also in Market Square is the L. museum, once a tn hall, erected in 1781. In the elaborate domed Ashton Memorial in Williamson Park, designed by John Belcher at a cost of £87,000, are a natural hist. collection, palm house, and observatory. Another public park is Ryelands (45 ac.), including a former residence of Lord Ashton. Although still engaged to a certain extent in shipbuilding and repairs, the prosperity of L. to-day mainly depends on oil-cloth and linoleum manufs., cotton spinning, furniture and cabinet making, textile manufacturing and dyeing, rayon, plastics, and engineering. L. is not, however, wholly industrial, although in recent years new and important industries have been estab. in the city. There can, however, still be found many of the attributes of an old Eng. mkt tn and L. itself is the centre of a large agric. community. In 1937 the title and dignity of a city were conferred on the bor. by King George VI on the occasion of his coronation. Pop. 49,910. See S. Clarke, *Lancaster*, 1811; S. C. Hall, *Lancaster Castle*, 1843; R. Simpson, *History and Antiquities of Lancaster*, 1852.

2. City in New Brunswick, Canada, on the opposite side of the St John R. to St John, formed by the amalgamation of the municipalities of L. and Fairville. It is the site of the Prov. Hospital and

has an important brush and broom industry and a pulp- and paper-mill. Pop. 10,000.

3. Co. seat of L. co., Pennsylvania, U.S.A., on the Conestoga R., 69 m. W. of Philadelphia. It is a thriving industrial tn for one of the richest agric. areas in the U.S.A., with large tobacco warehouses, cotton mills, breweries, tanneries, iron works, machine works, silk-mills, and chocolate factories. There are also cork and linoleum works, umbrella factories, and plants for making watches, clocks, etc. Franklin and Marshall College is here. Pop. 63,780.

4. City, co. seat of Fairfield co., Ohio, U.S.A., on the Hocking R., 26 m. SE. of Columbus. It manufs. flint glass, farm machinery, etc. Pop. 24,200.

**Lancaster, House and Duchy of.** The house of L. originated in the second son of Henry III, Edmund Crouchback, who was created Earl of L. and Leicester in 1267. The Duchy of L. was created by royal charter in 1351 for Henry, son of Edmund Crouchback, and again in 1362, when John of Gaunt, who married Blanche, the sole heiress of the Lancastrian estate, was made Duke of L. in default of male heirs. Their son, Henry IV, seized the throne from Richard II, reigned from 1399 to 1413, and was succeeded by Henry V (1413-22). During the reign of Henry VI (1422-61 and 1470-1), the Wars of the Roses broke out, in which the Lancastrians were opposed by the house of York, descended from Lionel, Duke of Clarence, elder brother of John of Gaunt. The Duchy of L. was annexed to the Crown by Edward IV in 1461, but up to the present time the revenues are held separately from the hereditary revenues of the Crown. Formerly the chancery court of the co. palatine was held at Preston and the duchy court at Westminster, but since 1873 the administration of justice has been assimilated to that of the rest of England, though the chancery court of the palatinate still functions separately. The office of chancellor of the duchy, being a political appointment, is generally held by a member of the Cabinet, and the stipend is £4000 per annum. See T. Taswell-Langmead, *Constitutional History*, 1875; W. Stubbs, *Constitutional History*, 1875; J. Gairdner, *The Houses of Lancaster and York*, 1886; Sir J. H. Ramsey, *Lancaster and York*, 1892; J. E. A. Jolliffe, *Constitutional History*, 1937.

**Lancaster Regiment**, see KING'S OWN ROYAL REGIMENT.

**Lance, George** (1802-64), painter, b. Little Easton, Essex. He studied under Haydon, intending to produce historical pictures, but discovering where his real bent lay by the copy of a group of fruit merely as a study of colour, he afterwards devoted himself entirely to still life and fruit studies, sev. of which are in the Tate Gallery.

**Lance**, see SPEAR.

**Lance-corporal**, in the Brit. infantry, a non-commissioned officer below the rank of corporal, or an acting corporal; those

on the estab. of a battalion wear a single chevron on each sleeve.

**Lancelet**, see AMPHIPOXUS.

**Lancelot du Lac**, famous knight of the Round Table, and secret lover of Queen Guinevere. He was the son of King Ban of Benoic and Queen Helaine, who were driven out of their kingdom by Claudas. L. was brought up at the court of a water-fairy, the Lady of the Lake, and when he reached manhood he offered his services to King Arthur, who made him a knight. His love for Guinevere was disclosed to Arthur by the sons of Lot, and at the end of the ensuing war he retired to a monastery. He was, by Elaine, the father of Sir Galahad. The story of L. du L. belongs to the later romance of the Arthurian cycle. See eds. of the prose *Lancelot*, 1488 and 1533; H. Hahn (ed.), *Lancelot*, 1845; J. L. Weston, *The Legend of Sir Lancelot du Lac* (vol. xii. of Grimm Library), 1901; J. Boulenger, *Romans de la Table ronde*, 1922-3.

**Lancers**, cavalry regiments so named from their prin. arm being, or having been, the lance. In the days of chivalry the long lance was the chief weapon of offence, but in 1597 it declined in importance, owing to the introduction of a serviceable firearm, with which Dutch and Eng. carabiniers defeated the Spaniards in the Netherlands. At the battle of Dunbar, 1650, however, Cromwell's troops suffered severely from Scottish L. Frederick the Great included a lancer troop in each of his hussar regiments, the men of which were armed with a long pistol, sword, and lance. At this time there was no pennon on the lance. During the Napoleonic period the lance was seen on many battlefields in the hands of Poles, Cossacks, and Arabs. After Wagram L. began to appear in the Fr. ranks. A regiment of Polish L. was raised in 1807 in the Fr. service, and in 1811 Napoleon converted 9 dragoon regiments into L. The Fr. L. in the Peninsular war were very prominent at Albuera, and again at Waterloo they sorely tried the Brit. dragoons and hussars. Soon after Waterloo a few regiments of Brit. dragoons were converted into lancer regiments.

The lance, though a good weapon of offence, is very difficult for parrying. The long lances of the Cossacks proved a hindrance to them in the Moscow campaign of 1812 for this reason. During the first half of the 19th cent. the 16th L. distinguished themselves in India by their work with the lance. The 9th and 12th L. also gained fame in India and on S. African fields. In the Khatourn expedition, under Lord Kitchener, the 21st L. charge was a notable feature of the campaign. During the S. African war, 1899-1902, the 5th L. made a very effective charge at Elands-laagte in 1899. In spite of these achievements the lance declined in favour soon after this campaign. The lance found little scope in the First World War. During Aug. and Sept. 1914 in France the 12th L. at Cerizy and the 9th L. at Moncel afforded the only instances of effective charges. The 21st

L. also found employment on the NW. frontier of India against the Mohmands, and the 2nd Indian L. under Allenby in Palestine wrought havoc amongst the Turks with their charges. Later the lance was retained solely for ceremonial purposes. But to-day it has disappeared with the conversion of lancer regiments into armoured units. As armoured troops or armoured car units the L. fought in many great battles of the Second World War, notably in the heavy fighting in Normandy in the difficult bocage country. The regiments of the Brit. Army still bearing a lancer title are: 9th Queen's Royal L., 12th Royal L. (Prince of Wales's), 15th/19th The King's Royal L., 16th/5th L., and 17th/21st L.

See Joan Bright (ed.), *The 9th Queen's Royal Lancers, 1936-1945*, 1951; see also R. M. Barnes, *History of the Regiments and Uniforms of the British Army*, 1950.

**Lancers**, square dance of Fr. origin (*lancières*). The name of this dance was given originally to a set of quadrilles, known as 'A Second Set of Quadrilles,' often referred to as the L. Quadrille. The Quadrille was first introduced to Eng. society in 1818, and won immediate favour. The following year an 'entirely new' set of figures was claimed for the L. being launched by the nobility and gentry of fashionable circles. Its prominence in the Eng. ballroom for so many years probably was due, in part, to its inclusion in all the state balls of Queen Victoria. Throughout the remainder of the 19th cent., and into the early years of the 20th cent., it remained a firm favourite. As in the Quadrille, the L. contained 5 figures, danced by 4 couples in square formation. 'Double Lancers' were for 16 dancers.

'**Lancet**, **The**,' leading Brit. medical jour., founded in 1823 by a surgeon named Thomas Wakley, who used it to attack the gross abuses then existing in the administration of hospitals. Wakley was assisted by Cobbet, Wardrop, Sir Wm Lawrence, and Dr Arthur Hill Hassall, and was succeeded as editor by his son and grandson.

**Lancet Window**, see ARCH and ENGLISH ARCHITECTURE.

**Lancewood** (*Oxandra lanceolata*), hard, heavy, fine textured wood from the W. Indies, used for bows, fishing rods, billiard cues, and turnery. The sapwood is clear lemon yellow in colour; heartwood when present is dark in colour—the sapwood is most used. The wood weighs about 62 lb. per cu. ft, splits readily, is easy to work and is strong and elastic. Once widely used by coach builders for the shafts of traps. See **TIMBER**.

**Lanchester**, Henry Vaughan (1863-1953), architect and tn-planner, b. London, came into prominence in 1899 when, with his partners E. A. Rickards (d. 1920) and James Stewart (d. 1904), he won the important competition for the City Hall and Law Courts at Cardiff. His firm, which included other partners during the next 50 years, had other sensational successes in competitions, which accounted for much of their work. L.'s most

notable buildings after 1899 were Deptford Tn Hall, 1901; the Wesleyan Central Hall, Westminster, 1905; Third Church of Christ Scientist, London; extensions of Leeds Univ. (competition), 1926; Birmingham Hospital Centre; Birmingham Technical College; sev. other technical colleges; extensions of St Bartholomew's Hospital; science buildings at Oxford, Cambridge, and Belfast; numerous research stations; tn halls at Hackney and Beckenham; Esso refinery at Fawley; Bovril factory, London. In India L. planned 20 tns, including Madras, reported on the site for New Delhi, and built a colossal palace for the Maharajah of Jodhpur. He ed. *The Builder*, 1910-1912, and pub. an excellent book, *The Art of Town Planning*, 1925.

**Lanchester**, rural dist. and vil. of co. Durham, England. In the neighbourhood are remains of a Rom. station, and Rom. relics have been found. The tn, situated near Durham, is industrial, and contains a cosmetic factory, steam saw-mills, and timber yards. Pop. (rural dist.) 15,100; (vil.) 2100.

**Lanchow**, cap. of Kansu prov., China, main railway centre between China and Europe, on the Yellow R., situated in a country of red loam hills from which the wind and rivs. have for cents. carried the soil which now covers most of N. China. Its natural potentialities are almost unlimited. Industrial co-operatives are gradually opening up the heart of the country from L. as centre. L. had no railway until 1952, since when 5 trunk lines have been started, radiating from this hub. (See CHINA, *Communications* and KANSU.) L. is also the biggest oil centre in China, owing to its proximity to the Yumen oilfield. Other industries too are being built up. L. is also an important air station between China and E. Europe. Pop. 650,000 (1957).

**Lanciano** (anct Anxanum), It. tn in Abruzzi e Molise (q.v.), 15 m. SE. of Chieti (q.v.). Together with Ortona (q.v.) it forms an archbishopric; the façade of the cathedral was damaged by a bomb during the Second World War. The tn has Rom. remains, linen and hemp industries, and a trade in agric. produce. Pop. (com.) 20,000.

**Lancing College**, public school for boys near Brighton, Sussex, founded in 1848 by the Rev. Nathaniel Woodard as the chief school in a scheme of Church of England education which now embraces 16 other schools.

**Lancisi, Giovanni Maria** (1654-1720), It. physician, b. Rome, educ. at the Collegio Romano and the Univ. of Rome, graduating in medicine at the age of 18. In 1688 he was appointed physician to Pope Innocent XI and subsequently to Clement XI and Innocent XII. L. was the foremost It. clinician of his day, eminent as anatomist, physiologist, pathologist, and botanist. His posthumous *De Motu Cordis et Aneurysmatibus*, 1728, was a landmark in the hist. of heart disease and his *De Subtaneis Moribus*, 1707, a classic on the causes of sudden

*rumorum egritudo*, 1711, in which he suggested that malaria might be caused by the bites of mosquitoes. In 1714 he pub. the anatomical plates executed by B. Eustachio (q.v.) in 1552, which had remained in the Vatican Library, forgotten until rediscovered by Clement XI. See life by A. Bacchini, 1920.

**Lancret, Nicolas** (1690-1743), Fr. painter of *fltes galantes*, b. Paris. He studied under Pierre Dulin, as Academy prof., but left him for Claude Gillot as the latter was the master of Watteau (q.v.) whom he met and whose style very strongly attracted him. The friendship between L. and Watteau does not, however, seem to have endured; it is said that the success L. achieved with 2 works which he exhibited and which were attributed to Watteau caused the rift. L. was prolific, and his pictures numbered about 800. His first important works were 'Le Bal champêtre' and 'Une Dame dans un bosquet', 1714. His 'Four Ages of Man' is in the National Gallery and the Wallace Collection has his 'Une Conversation galante.' L. has grace and charm, but lacks the peculiar power of his exemplar Watteau. See G. Wildenstein, *Lancret*, 1924.

**Land**, as the ultimate source of all wealth, has necessarily, throughout all time, been the most coveted kind of property. It has the characteristic of immovability which no other species of property possesses, and with the guarantee of state protection for all individual rights affords its owners an element of security and permanence in their proprietary estate altogether unique. And the more modern inventions increase the productive power of L., and the further the margin of cultivation is pushed by inventiveness and enterprise beyond its old limits, the keener becomes the desire to hold it. Conversely the further back the hist. of L. is traced the less valuable will it appear to have been to those who occupied it, more especially seeing that in primeval times there was ample for all. The hist. of every civilisation is that of the subordination of crude nature to human art, and it is clear from such records as are extant (chiefly Caesar and Tacitus) of the manners of tribal organisations that these quickly learnt the value of such L. as was capable of producing natural food for their subsistence. Even with tribes whose sole occupation was the chase, we see the germ of territorial property in the defence of hard-won L. against hostile aggression by less fortunate adventurers. In the pastoral stage that germ had developed into the tenure of the vil. community, the more civilised and developed organisation of which is to be found even at the present day, especially among Slavonic and Hindu peoples. In general the common field system of cultivation obtained as the most advantageous system of husbandry, i.e. the system by which fields were divided into 3 narrow strips, owned in severalty but cultivated by co-operation.



In primitive societies both the arable and *pasturo* L.s have remained the joint property of the community, and in an ideal state when those appointed to cultivate the L. or tend the cattle had been respectively best fitted for those purposes, and willing to perform the duties for the general benefit, the need for private ownership might not have been felt. The change comes with the apportionment of the arable L. among the households comprising the vil., while the pasture, woods, and forests remain common property. The principle of joint ownership, however, survives in the system of cultivation of crops by rotation, the L.s apportioned for culture lying fallow for a succession of years, other L.s being assigned by the vil. rulers for cultivation. This immature system becomes definitely that of private property as soon as L. is appropriated permanently to separate families, the less fortunate or more idle villagers being relegated to the waste L.s, or forced to labour for the landowners. From this appropriation springs all wealth, and the very notion of money, which in the Lat. word *pecunia* is cognate with *pecus*, cattle (see on this Sir F. Pollock and F. Maitland, *History of English Law down to the Thirteenth Century*, 1895). The general result of this course of evolution, where the vil. community has not become a permanent institution, is the tendency everywhere for huge landed estates to become concentrated in the hands of a few powerful families, and, indeed, for most of the rest of the L. occupied by any particular nation to fall into the hands of comparatively few of the people, with the consequence that political control falls to the owners of L., and the very qualifications for office are based upon the possession of a certain amount of L. It is then that ownership or tenure of L. is regulated by legislation, and, whether we are dealing with the agrarian reforms of the Gracchi or the fiscal proposals of our own times, it is not difficult to appreciate why laws relating to L. must almost inevitably be at the same time laws that vitally affect the very polity and constitution of the State, and inevitably rouse the angriest passions. It is not, however, to be assumed that the same course of evolution is traceable in the hist. of the L. of all existing nations, though there may well be certain fundamental similarities in the earliest stages. But unquestionably feudalism lies at the root of L. tenure in most European nations, although in practically every case nothing but faint traces still remain, e.g. in Scotland, where the Scots L. law still speaks of *feu duties* being payable by a *vassal* to his *superior* or *lord*, while in England we still speak of a lord of the manor. (For the relation between the Rom. tenure of L. and continental feudalism, see under LAND LAWS.) The break-up of feudalism may be said to have begun from the time knight service became commuted for a money rent, and practically completed when terms of years or leases were granted by landowners; for these were indications of speculation in L.

as a source of profit—a state of things entirely opposed to the spirit of commendation. The whole hist. of Eng. L. during the Middle Ages is that of a struggle between feudal overlords and their tenants, the former endeavouring to exact to the letter all the aids, reliefs, and other burdens imposed on the tenants by the L. laws, the latter endeavouring to evade all such quasi-public obligations and consolidate their holdings into private property in the fullest sense of that term, an endeavour which was partly accomplished by the devices of conveyancers in frustrating the common law rules as to tenure, and partly through alienations in mortmain (q.v.), and the doctrine of uses and trusts (see EQUIT). The idea that L. in England was merely *held* or loaned of a superior lord on certain conditions practically received its death-blow by the rule of primogeniture—at first a mere corollary of feudalism—and the judicial interpretation of words of grant (see DE DONIS). The later concession that L. might be disposed of by will completed the conception of a tenure of L. as a species of private property. As to the effect of marriage settlements, and wills customarily made in the manner of settlements, in keeping estates in the hands of wealthy families, see under LAND LAWS and ENTAIL.

In France there is a system of petty entails in vogue which, taken with the conformity of landowners to the spirit of the rule of succession of all the issue equally, results in the existence of a great number of private estates of no great size; whereas in England the effect of primogeniture and settlements made conformably to that doctrine is the aggregation of huge landed estates in the hands of comparatively few.

The social and economic developments of the last 100 years have substantially altered the pattern of land ownership in Britain. Urb. expansion, taxation, and death duties have broken up most of the large country estates. The substantial landowner of the mid-20th cent. is no longer the aristocrat or the industrial magnate turned squire. The commercial centres of our large cities are owned by prosperous property and insurance companies; nationalised and private industries control large areas of land used for factories, railways, mines, docks, power-stations and gas-works; local authorities have become the biggest landlords of residential property. On the other hand, redistribution of the national income and the growth of building societies have helped millions of wage earners to buy their own homes. Industry and the speculative builders share responsibility for reducing large tracts of land to grimy manufacturing tns, and those characterless suburbs which Sir Hugh Casson has called 'subtopia.' Modern tn planning legislation is designed to halt the wasteful and unplanned use of land. The industrialist is no longer free to build a new factory in a residential neighbourhood. The laying out of new housing estates is closely scrutinised by local authorities.

The builder with a fancy for 'stockbroker Tudor' or mock Gothic is likely to be thwarted. Although L. is frequently acquired by the gov. and local authorities, or its resources and development controlled, its nationalisation has never been seriously entertained. At a public inquiry in 1954 the Crown was severely criticised for having retained Criche Down after it was no longer used for the purpose for which it had been compulsorily purchased, without giving the former owner an opportunity of buying it back. The Land Clauses Consolidation Act, 1845, standardised the procedure for compulsory acquisition (*see* LAND LAWS). *See also* GARDEN CITIES; GREEN BELTS; LAND COMMISSIONERS; LAND FOR MILITARY PURPOSES; LAND LEAGUE; LANDLORD AND TENANT; LAND, NATIONALISATION OF; NEW TOWNS; TOWN AND COUNTRY PLANNING.

*See* Sir H. Maine, *Village Communities*, 1871; E. Jenks, *Modern Land Law*, 1899; Barbara Hammond, *The Village Labourer, 1760-1832*, 1911; J. S. Venn, *Foundations of Agricultural Economics*, 1923; F. Geary, *Land Tenure and Unemployment*, 1925; Lord Ernle, *The Land and the People*, 1925, and *English Farming*, 1927; Sir W. Holdsworth, *History of English Law*, 1927; G. C. Cheshire, *Law of Real Property* (7th ed.), 1954.

**Land, Nationalisation of, abolition of all private ownership in land and the vesting of landed property in the State.** Socialists argue that the N. of L. or state ownership of land differs from state ownership of movables or 'created commodities,' because land is the ultimate source of supply of man's entire material needs, and therefore a land monopolist is a potential danger to the community. The assumption that no man has the moral right to private ownership of nature's resources is the chief inspiration of those who advocate state ownership. Most arguments for the N. of L. spring from the theories of J. S. Mill, Henry George, and Herbert Spencer, and proposals for nationalisation (as distinguished from socialism) have attracted only small attention outside the U.S.A. and Great Britain; they have won favour only in those conditions where land values, owing to the rapid economic progress of the past cent., have risen phenomenally, while remaining in the hands of relatively few owners. This condition favoured arguments founded on Mill's proposals for the taxation of unearned increment but going further, since Mill did not advocate more than the nationalisation of a proportion of the increment. In Russia, where all land was confiscated under the regime of the U.S.S.R., small holdings are let out to peasant agric. workers.

**Land Army, *see* WOMEN'S LAND ARMY.**

**Land Banks** are conducted for the purpose of lending money to farmers who wish either to buy land or to embark upon development of land already owned by them. In Great Britain there are no L. B. exclusive to that class of business, the farmers conducting their business through

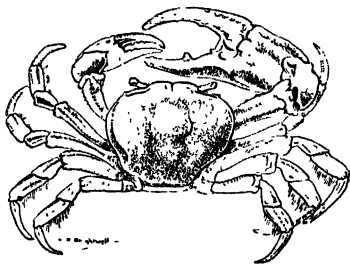
the ordinary joint-stock banks, most of which advance money on mortgage, holding the title-deeds as security, or by local credit societies affiliated to such concerns as the Farmers' Land Purchase Co. and the Lands Improvement Co. But there are agric. banks, whether called by that name or some other name indicative of their function, in sev. Brit. colonies, notably in Barbados (ordinances of 1907 and 1936); Cyprus (ordinances of 1890 and 1925); Kenya (ordinances of 1931); Mauritius (ordinance of 1936); Seychelles (ordinance of 1937); S. Rhodesia (ordinance of 1924); Trinidad (revised laws, cap. 132); Transjordan. Germany had the Landschaften Credit Union of Germany and the Raiffeisen Bank, which controlled a great number of credit societies. L. B. operate extensively, however, in the U.S.A., where the Federal Land Bank is the most prominent. In 1923 gov. control was imposed over the movement, and the capital was subscribed by the Treasury. Intending borrowers are required to take up 5 per cent of the loan in Federal L. B. stock, such facilities being available only to farmers. There are, too, many privately owned joint-stock L. B. authorised by the Federal Farm Loan Act. Borrowers from these banks are under no obligation to make a subscription, and advances are made for the purpose of development, including expenditure upon seeds, machinery, etc., as well as for the purchase of land.

**Land-bridges.** Some species or groups of land animals and plants, both fossil and living, are found to occur at a number of widely distant localities which are now separated from each other by great stretches of sea. If each species or group is considered to have arisen by evolution, then their distribution becomes difficult to explain, since it is necessary to assume that members of the group migrated from the place where they first appeared across wide areas of what is now the sea. Some geologists have attempted to get round this difficulty by postulating the existence at various times in the past of L.—narrow tracts of land or chains of is.—which connected 2 continents and which were subsequently submerged. An alternative solution of the problem is provided by the hypothesis of continental drift (q.v.).

**Land Commissioners.** On the passing of the Tithe Act, 1836, commissioners were appointed to administer its provisions, and when the Copyhold Act, 1841, was passed, the tithe commissioners were entrusted with the duty of administering that Act as well. When later additional duties, relating to the enclosure of commons and land drainage, devolved upon them, they became styled tithe, copyhold, or enclosure commissioners according to the particular functions they happened to be exercising at the moment. On the passing of the Settled Land Act, 1882 (*see* LAND LAWS), they received the name of L. C. for England. Finally, in 1889, the commission became merged in the Board of Agriculture.

**Land-crab,** popular name given to the

species of *Gecarcinidae*, a family of malacostracan crustaceans which only occasionally visit the sea or fresh waters. They have a square, convex carapace and moderately large eyes. The species of *Uca* are found in the mangrove swamps of S. America, and those of *Gecarcinus* inhabit the forests of the W. Indies.



LAND-CRAB (*GECAECINUS ARMATUS*)  
FROM THE GABOON  
One-sixth natural size.

**Land Drainage,** *see* DRAINING AND DRAINAGE and LAND RECLAMATION.

**Land for Military Purposes.** Under various statutes the Crown has power to interfere with a landowner's rights, or acquire his land by compulsory purchase for purposes relating to military administration. There are a number of provisions to be found in the Military Forces Localisation Act, 1872; Ranges Act, 1891; Military Lands Acts, 1892, 1900; and the Military Manoeuvres Act, 1907, for the purchase of land for ranges, for volunteers, military manoeuvres, barracks, or otherwise for the localisation of the military forces, and generally for military purposes. Under the Defence (Barracks) Act, 1935, land may be acquired compulsorily for barracks for any of the 3 services. There are ancillary provisions in these Acts authorising the taking, closing, or diversion of highways, the making of by-laws relative to practice ranges, and the assessment of compensation for damage done in the course of military manoeuvres. Also the secretary of state for war has power, under the Military Tramways Act, 1887, to purchase land for military tramways (as to acquisition of land in case of invasion *see* DEFENCE ACT, 1842). The procedure for the acquisition of land and the mode of assessment and payment of compensation is for the most part to be found in the Defence Act, 1842. Generally speaking, assessment is either by jury or 2 justices, but in the case of land acquired under any Act which incorporates the Lands Clauses Acts (q.v.), the authority acquiring the land may require the assessment to be settled not by jury but by arbitration. *See also* LAND LAWS as to compensation for 'injurious affection.'

**Land Laws.** Most legal systems have special rules relating to the ownership of

land which differ substantially from those affecting other forms of property (e.g. stocks, shares, money, chattels). The L. L. of a country more than any other branch of law reflect the social and economic organisation of the community. The development of Eng. L. L. throughout the cents. indicates the transition from a feudal society to a property-owning democracy. In many continental countries, an agrarian economy of small farms is perpetuated by the laws of inheritance which require the land of a deceased to be divided among his children.

**Historical development of English land laws.** At the time of the Norman Conquest all land belonged to the king. He rewarded his prin. supporters and nobles by granting them land which they held of him as 'tenants in fee.' In return for their lands, they swore fealty and were obliged to perform certain services (usually military) or pay dues. These great landowners (tenants in chief) would in turn parcel out part of their land among their own prin. supporters in return for similar services and payments. This process which would be repeated sev. times right down the scale was called subinfeudation. The smaller landowners who held their land on what was termed socage tenure, would perform agric. services. Church dignitaries and religious orders held their land on spiritual tenure, being obliged to perform religious duties for their immediate overlord. This pyramidal ownership of land reflected the stratified pattern of feudal society. In 1292 the Statute Quia Emptores which abolished subinfeudation and simplified land tenure also checked the influence of the more powerful landowners whose personal ambitions had weakened the Crown's position in the 13th cent. Even so, it was not until the Tenures Abolition Act, 1660, that such duties as grand sergeantry and knight service (q.v.) incident to feudal tenure were formally abolished. The conception of England as the hereditary fief of the king and the principle of primogeniture in succession to land which served to keep great landed estates in the same families for generations were the particular features of Eng. land law. Between the 16th and 19th cents. the enclosure movement concentrated land ownership in most parts of the country in the hands of the great landowners. The ownership of land was kept in the same families for generations by means of strict settlements (*see* SETTLEMENT). As other forms of wealth were created by industry and commerce, the possession of landed property became less attractive. Many landowners were mere life tenants of estates which had to be kept up out of income which became increasingly insufficient to meet maintenance costs. The Settled Land Act, 1882, offered some relief by extending the powers of the tenant for life who could resort to capital monies for improvement. The Settled Land Act, 1925, further increased his powers. Even so heavy death duties and taxation have accelerated the

break-up of large landed estates. The rise of large towns has been assisted by the grant of long leases at a small rent of land on which builders and property companies could build houses, factories, and shops. This accounts for the great number of properties held on ground leases. In the 20th cent. the transfer of house properties rather than the settlement of great landed estates form the most important part of conveyancing work. The L. L. were revolutionised and simplified by the Law of Property Act, 1925. A knowledge of pre-1926 state of L. L. will with the passage of time, become increasingly unnecessary. The scarcity of land in Britain and the permanent effects of industrialisation have necessitated controlled planning of the use of property and the preservation of amenities. The real property lawyer is now less concerned with the technicalities of deducing and investigating titles to land than with the increasing restrictions imposed by town and country planning law. A solicitor for a prospective purchaser must satisfy himself that the property is not liable to be affected by any town development plans, road widening schemes, or any restrictions as to its use. The possession by local authorities and new town development corporations of wide powers of compulsory purchase has made considerable inroads into the comfortable notion that an Englishman's home is his castle. The realisation that Britain must grow more food has resulted in legislation to secure the most efficient use of agric. land. The inefficient farmer is liable under the Agriculture Act, 1947, to be directed by a supervision order to improve his standards of husbandry or even to be evicted by a dispossession order of the Ministry of Agriculture. The competent tenant farmer, however, enjoys some security of tenure (see AGRICULTURAL HOLDINGS). Before the present cent., L. L. were primarily concerned with the ownership of land. As most occupiers of property are mere tenants, Parliament has done much to protect their rights. The control of rents and the protection of residential and business tenancies is discussed under LANDLORD AND TENANT.

*Estates and interests in land.* In Eng. law sev. estates and interests can be created out of one piece of land. An estate in land denotes the length of time for which it is held. Crown's ownership of all land is now theoretical. In modern L. L. the owner of the land itself is said to have the freehold or an estate in fee simple (q.v.). Subject to the limits of respect for the property and possessions of others (see NUISANCE) and planning restrictions, a freeholder has unfettered rights of absolute ownership in perpetuity. He can dispose by deed or will of his whole interest (i.e. freehold) or any part of it, or for a term of years (see CHATTEL REAL; LANDLORD AND TENANT), provided that such disposition is not a voluntary assignment to defraud creditors (see BANKRUPTCY). His ownership in the soil extends without limit above and below

(*cujus est solum, ejus est usque ad coelum et ad inferos*). A right to air above the land which merely expresses his right to erect buildings of whatever height he pleases is subject to (1) any covenants made with owners of adjoining land to restrict this right; (2) any prescriptive rights of light gained by other persons; (3) any local planning regulations. The right to the actual soil in a highway is subject to the public right of way (see HIGHWAYS), unimpaired, though the highway must not be broken up by mining operations. The freeholder has mineral rights subject to the Crown's claim to any gold or silver mines ('royal mines') and the National Coal Board's ownership of coal. Water is technically land covered with water (see LAND) but the owner's right to it depends on whether it is percolating, or running through a defined stream or channel. If the former, he may use it as he pleases although in doing so he may deprive his neighbours of essential water supplies or by drainage operations, cause subsidence of adjoining land (see DAMNUM ABSQUE INJURIA). But if the latter, he has no right to exhaust the supply or exhaust the stream, or divert or pollute the water, unless the diversion causes no material injury to other landowners over or through whose land the stream also flows, unless he has obtained a right to divert or pollute by prescription (uninterrupted user for 40 years). If the water is tidal, whether or not navigable, every riparian owner has an equal right to take a reasonable quantity for domestic or business purposes. The freeholder may grant lesser estates and interests in his land some of which are described hereafter. (2) *Leaseholds*. He may grant a lease for a term of years. The lessee (leaseholder) may himself use the land as he wishes, subject to any conditions in the lease. He may grant underleases of the whole or part of the land. See also LANDLORD AND TENANT. (3) *Mortgages*. Freeholders and the holders of long leases may raise money on their land by mortgages. The mortgagee (the lender) under the mortgage acquires certain rights in the land (e.g. the right to sell it if the mortgage debt is unpaid). See also MORTGAGES. (4) *Easements and profits*. A landowner may grant the owners of adjacent land rights (easements) over his land (e.g. rights of way). He may also grant other persons the right to take certain things from the soil of his land (*profits à prendre*). See also INCORPOREAL HEREDITAMENTS; COMMONS; EASEMENTS). Various rights against an owner of land may be acquired by prescription. A right of way is gained in 20 years (subject to the right having been enjoyed by some consent or agreement expressly given in writing). Where the owner of a house and adjoining vacant land sells his house, a right to light over the land arises by implication, but if he sells the land such easement arises only where he expressly reserves the right to light over the land sold. (5) *Settlements*. A landowner can create by deed or will a settlement under

the Settled Land Act, 1925, providing for various successive interests in his land (e.g. tenancy for life and successively entailed interests in remainder (q.v.). A settler may charge part of the land to provide pin money or jointures (q.v.) or portions (see also HOTCHPOT) for widow and younger sons. Land must not be settled in such a manner that it is capable of operating in perpetuity (see PERPETUITIES and LIMITATIONS). The fee simple is vested in the tenant for life (called the protector of the settlement, who may sell the settled land, the proceeds of which (capital monies) are paid to the trustees who must reinvest them (see SETTLEMENTS)). (6) *Trusts for sale* exist where a settlor or testator gives land to trustees on trust for the beneficiaries. The legal estate in the land is vested in the trustees who make title, the beneficiaries having mere equitable interests. A purchaser of land forming part of a settlement or trust for sale is not concerned with the rights of the beneficiaries and need only satisfy himself that the title to the land is in order.

*Title to land.* The purchaser of land must be satisfied that the vendor has a good title to it. If the land is in England and Wales, he will trace the ownership of the land through the title deeds for the last 30 years to obtain a 'good root of title.' Title may be traced through conveyances, grants of probate, or letters of administration and mortgages. If the title to the land is registered at H.M. Land Registry, he will be spared detailed investigation, as a simple land certificate will indicate that the vendor is entitled to ownership of the land. See LAND; LAND COMMISSIONERS; LAND FOR MILITARY PURPOSES; LAND LEAGUE; LANDLORD AND TENANT; LAND NATIONALISATION. See G. C. Cheshire, *Modern Law of Real Property*, 1954; R. E. Megarry, *A Manual of Real Property Law*, 1955; Hargreaves, *Introduction to the Principles of Land Law*, 1956.

**Land League.** The association formed by Michael Davitt (q.v.) and other Irish politicians in 1879 for the purpose of promoting reforms of land tenure in Ireland. The agitation of its members resulted in Irish tenants forming a kind of trade union, by the rules of which they were bound to refuse dealings with any tenant who had taken land from which its former occupier had been evicted. One of the first victims was Capt. Boycott (q.v.), whose name has ever since been a synonym in the Eng. language for shunning a person. According to modern historians of Irish affairs, the L. L. did its utmost to warn the peasantry against deeds of actual violence, but the gov., fully believing that its members had encouraged and incited tenants to commit outrages, instituted a prosecution against Parnell (q.v.), Biggar, Sexton, Dillon (q.v.), and the entire executive body of the L. L. The prosecution produced no result, for, as Justin McCarthy (*History of Our Own Times*, 1892-7, 1905) points out, the Crown could never have found a jury in Leinster,

Munster, or Connaught to convict Parnell of sedition, unless it had 'packed' the jury. The L. L. was a great factor in the hist. of agrarian reform in Ireland, and one of the first legislative fruits resulting from it was the concessions in Gladstone's Land Bill, 1881, though Parnell himself did not deem it politic to accept the Bill in the name of his revolutionary followers as anything more than a small instalment of their just demands. The L. L. through Parnell then advised Irish tenants generally to abstain from litigation against landlords until certain test cases had been decided. The result was that the gov. interpreted Parnell's advice as an attempt to thwart its legislation, and promptly imprisoned him under the Coercion Act. Later, when other prominent members of the L. L. were imprisoned, the league was dissolved. 'Land of Enchantment,' see NEW MEXICO.

'Land of Steady Habits,' see CONNECTICUT.

**Land Reclamation.** The hist. of L. R. goes back to the anc. Egyptians, who are believed to have drained the Nile valley. The Romans had extensive drainage systems, from which some countries still benefit. In more recent years the Netherlands is the outstanding example of a country's enterprise in L. R. In 1553 the Lake of Haarlem was drained, and in 1931 an ambitious scheme was launched for the reclamation of the Zuider Zee by means of dykes. Under this scheme large portions of the Zuider Zee, which was transformed into a fresh-water lake called IJsselmeer, were reclaimed before the Second World War, for agric. purposes. In April 1945 the Germans flooded the land behind the Grebbe in the hope of holding out behind the water barriers, but after an allied warning to their commander (Gen. Blaskowitz) that the opening of the dykes would constitute an indelible blot on his military honour while in no way impeding the coming collapse of Germany, there was no further flooding. In 1949 Marshall Aid was granted to the Dutch to pay for projects begun in 1948. These projects included the reclamation of no less than 120,000 ac. of farmland in the IJsselmeer to be added to the area of the Netherlands, and the redistribution of farmland on Walcheren. The Allies had flooded Walcheren at the end of the war because it was a strategic point held by the Germans. Its flooded fields were drained by 1949 and were once more in production. Reclamation for a new polder in the SE. of the IJsselmeer (q.v.) started in 1950. The ten lands in the E. of England are another example of L. R. by drainage. It has taken 100 years to reclaim this dist., consisting of 1000 sq. m. or more of marshland, from fresh and sea water. Other countries in which vast areas of land have been reclaimed by drainage are Italy and America. In 1925, 592,455 hectares of land in Italy were estimated to require urgent drainage, and more than 300,000 hectares of this land were reclaimed by 1951 and the rest not long afterwards. Land is also made more fertile by irrigation, and desert land

one likely to pique public curiosity. Pop. 11,000.

**Landes:** 1. Name given to the sandy and marshy region of SW. France between the Bay of Biscay, the Garonne, the Armagnac hills, and the Adour.

2. Dept of SW. France, on the Bay of Biscay, formed of part of the ant. prov. of Gascony. It is divided into 2 parts by the R. Adour; the portion to the N. includes three-fifths of the dept. and is composed of tracts of heath and sand, interspersed with forests of pines and cork trees and numerous marshes, which are being gradually drained into the shallow lagoons which fringe the sea-coast; the S. part is hilly and covered with oak plantations and vineyards. The mining of iron ore and bituminous coal is an important industry. There are mineral springs at Dax, and rock salt is obtained there and at Lescourre. The prin. tns are Mont-de-Marsan (the cap.) and Dax (q.v.). Area 3604 sq. m.; pop. 248,950.

**Landeshut,** see KAMIENNA GÓRA.

**Landgrave,** old Ger. title of nobility. After the time of the Carolingian kings the term was used for a governor in the interior, under a duke, in contradistinction to a margrave, or keeper of the frontier. But the L.s soon made themselves independent and all such distinction was lost. In the 11th cent. the margraves of Thüringen assumed the title of L.s, and in the next cent. the Graves of Hesse obtained the title.

**Landlord and Tenant.** Technically an owner in fee simple (see ESTATE; INHERITANCE; HEREDITAMENTS) who leases his land to another for 999 years at a nominal rent stands to that other in the relation of L. and T. In this article the relationship L. and T. will be restricted to its popular connotation of a grant so limited in duration, and so burdened with reciprocal obligations or covenants (q.v.) for rent, repairs, and the like, that the grantor or landlord retains an appreciable or substantial interest in the land leased. Any landowner may grant a lease to another for a term not exceeding in duration the interest or estate he himself holds in the land; but a tenant-for-life under the Settled Land Acts can, under certain conditions, grant building leases for 99 years, mining leases for 60 years, and occupation leases for 21 years, and such leases will stand good even though they may endure beyond the life of the lessor, for they are made for the benefit of the inheritance rather than that of the tenant-for-life, and the latter will have to set aside a certain portion of the rents from mining leases and fines reserved on those and building leases as capital moneys. Under the Settled Land Act, 1925, leases of settled land may be made and leases accepted by the tenant-for-life or by trustees of the settlement. With certain exceptions any one may become a tenant; but an infant (see INFANCY) may, on coming of age, repudiate within a reasonable time leases taken by him while under age.

Tenancies are either for a fixed term of

years, commonly called a leasehold (see LEASEHOLD), from year to year (yearly tenancy), or for a shorter term than a year, including the tenancy of a lodger. No precise or technical form of words is required to constitute a leasehold, but it is unwise, especially from the tenant's point of view, not to be guided by precedent, for omissions almost inevitably throw further burdens upon him and not on the landlord. A lease for a term not exceeding 3 years, taking effect in possession at the best rent which can be reasonably obtained without taking a fine, may be by parole or in writing under hand only; but leases without a saving clause for the doctrine of part performance (see FRAUDS, STATUTE OF) must be under seal by deed, and also leases for a term over 3 years. Agreements for a lease are not enforceable by action unless evidenced by a memorandum in writing (Law of Property Act, 1925), though this does not apply in certain cases of leases by persons under disability; but if the tenant enters into possession it takes effect as a tenancy at the will of the landlord, and if he pays rent it becomes a yearly tenancy. If in writing, though not under seal (i.e. not a deed), the tenant can get the agreement to grant a lease enforced by a court of equity (q.v.). The advantage of a deed is that it gives the *legal estate*, and where 2 innocent persons are defrauded by a landlord purporting to grant the same land to 2 persons at once, he who has the legal estate prevails. If both have deeds, the first in date prevails; otherwise a deed is now of no great importance. As to building leases granted in consideration of a ground rent, see GROUND RENT. By the Law of Property Act, 1922, perpetually renewable leases are convertible into leases for 2000 years; and by the Act of 1925 leases for lives are converted into leases of 90 years determinable by notice on the cesser of the life. Leases are generally prepared by the landlord's solicitor, who submits a draft lease to the tenant's solicitor for approval or amendment. The lease is then engrossed (formally written out) in duplicate, the *counterpart* being retained by the landlord and the lease delivered to the tenant. The latter, if he does not employ a solicitor, should see that the engrossed lease contains all the amendments or alterations agreed upon. The tenant pays the expenses of the landlord's solicitor according to a fixed scale (see FEES). Leases usually contain covenants (q.v.) by the tenant to pay rent, rates, and taxes (except landlord's property tax); to keep the premises in tenantable repair, and at the end of the term to deliver up the premises in good repair; to insure the premises against fire; to permit the landlord on giving notice to enter and view the state of repair; and not to assign or underlet without the landlord's consent; and a covenant by the landlord that the tenant shall have quiet possession. Under the Landlord and Tenant Act, 1927, a landlord may not unreasonably withhold consent to assignment; and the Law of

Property Act, 1925, provides against the exaction of a fine for the landlord's consent save where the lease expressly provides for such payment. In any event, a reasonable sum for legal or incidental expenses must be paid by the tenant. An agreement to assign must be in writing. In the absence of express agreement the tenant and not the landlord is bound to do repairs. Most leases also contain a proviso for re-entry by the landlord on the tenant failing to perform his covenants; but this is not to be interpreted literally, as the landlord must first give the tenant notice of the breaches (q.v.) complained of, and reasonable time to remedy them, and then, if the tenant continues to make default, take proceedings in ejectment (q.v.). As regards 'decorative repairs,' when a landlord seeks to forfeit a lease on the ground of the tenant's failure to execute such repairs, the court may in certain cases give relief to the tenant; but no relief will be granted when the covenant to put in repair has never been performed nor when the tenant has covenanted to yield up the premises in a specified condition, nor again when sanitary considerations apply (Law of Property Act, 1925). The Leasehold Property (Repairs) Act, 1938, and Landlord and Tenant Act, 1954, restrict the enforcement by lessors of repairing covenants in tenancies granted for at least years (other than agric. holdings). The Act applies to any property comprised in a lease with 3 or more years unexpired, and is invoked where the lessor serves a notice under the Law of Property Act, 1926. The lessor can defeat the restriction by proving that the breach of the repairing covenant substantially diminishes the value of his reversion or on various other grounds specified in the Act, as that he cannot otherwise give effect to some enactment or by-law providing for the safety or sanitary condition of the house. Forfeiture for a breach of conditions other than by non-payment of rent is regulated by the Act of 1925. With certain exceptions, the landlord may give the tenant notice of the breach and demand compensation, calling upon the tenant to remedy a remediable breach; but a tenant who has tried to comply with the notice may get relief in the courts.

In practice the above covenants are often varied by agreement, and of course it is to each party's interest to throw as many of the burdens as possible on the shoulders of the other. The principle of contention is the repairing covenant; a covenant to yield up in a good state of repair does not mean that the tenant is under an obligation to renovate the premises, for the nature and age of the premises and the class of neighbourhood will be taken into account by a court of law in deciding what repairs the tenant was bound to execute. If the premises are burnt down, the tenant will still be liable to pay rent in the absence of express stipulation in the lease to the contrary; and if he is under a repairing covenant, he will also have to pay so much of the

expenses of repair as are not covered by insurance moneys.

A yearly tenancy is one which is expressed to be from year to year, or in respect to which the tenant pays a yearly rent. A clear 6 months' notice is necessary to determine a yearly tenancy. A tenancy for 1 year certain, and thereafter from year to year, is not a yearly tenancy, but operates as a tenancy for 2 years at least, and the earliest moment at which it can be determined is at the end of 2 years by notice given at the end of the first year. Quarterly tenancies may be determined by a clear quarter's notice, and monthly and weekly tenancies by a month's notice. The liability for repairs in the case of a yearly tenancy is usually a matter of express agreement, in the absence of which neither landlord nor tenant is liable, though the tenant must make good actual damage caused by him.

Lodgers have the same rights, and are under the same liabilities as other tenants, except that in the absence of contract the estab. custom of the locality determines what notice to quit must be given. Generally speaking, if the hiring is from year to year, 6 months' notice must be given, if quarterly a quarter's notice, and so on; and a lodger who quits without giving notice is liable for 6 months', a quarter's, or a week's rent according to his contract.

Tenancies at will (apart from the case of verbal contracts noticed above) arise where a tenant is let into possession of land on the terms that he is either bound to quit at the will of the landlord, or entitled to go at his own will. At law the payment and acceptance of rent will convert such precarious tenancy into a yearly tenancy. Tenancies at will do not often occur in practice, any more than tenancies by *sufferance*, i.e. where the tenant holds over after expiry of his lease. Most lawyers regard the tenancy by *sufferance* as a legal fiction to explain feudal archaisms, and in practice it may be safely assumed that the law will construe a tenancy of holding over to be continued on the same terms as the expired tenancy, or else as a yearly tenancy, subject, of course, to there being clear evidence of a merely contumacious holding over against the will or knowledge of the landlord, in which case the tenant will be liable for double rent where he has himself determined the tenancy by notice; and for double the ann. value if the landlord gave the notice. Except in the case of furnished houses and dwellings under the Housing of the Working Classes Acts, there is no implied warranty on the part of the landlord that the premises are fit for occupation. Under the Housing Act, 1925, the landlord covenants that the premises are and shall throughout the term remain in a state fit for human occupation and he may not contract out of this obligation (*see also* HOUSING), and it is to be noted that a person who knowingly lets for hire premises in which any person has been suffering from any infectious disorder without having duly

give his landlord 3 months' notice of his intention to make the improvements. The landlord may object to the improvements being made or make them himself in return for an increased rent. The claim must be made not more than 6 months before nor 3 months after the termination of the tenancy.

AGRICULTURAL TENANCIES. See AGRICULTURAL HOLDINGS ACT.

STAMP DUTY. The stamp duty on a lease or tack (q.v.): (1) For any definite term not exceeding a year: of any dwelling-house or part of a dwelling-house at a rent not exceeding the rate of £40 per annum is 2d. (2) For any definite term less than a year: (a) of any furnished dwelling-house or apartments where the rent for such term exceeds £25, is 10s.; (b) of any lands tenements, or heritable subjects otherwise than as above, the same duty as a lease for a year at the rent reserved for the definite term. (3) For any other definite term or for any indefinite term: of any lands, etc.: Where the consideration (q.v.), or any part of the consideration, moving either to the lessor, or to any other person, consists of any money, stock, or security: in respect of such consideration the same duty as a conveyance on a sale for the same consideration (Revenue Act, 1911, s. 15); where the consideration or any part of the consideration is any rent: in respect of such consideration, if the rent, whether reserved as a yearly rent or otherwise, is at the rates in the table set out opposite, the duties are as there set forth. (4) Of any other kind whatsoever, 40s. (Note: Where the agreement for lease is fully stamped *ad valorem*, the lease itself requires 6d. only, but the denoting stamp is necessary.) (5) Building lease: *ad valorem* on the rent.

To come under the provision of the Stamp Act, 1891, and of the Finance Act, 1924, the document must operate as a lease or a tenancy agreement.

See also HOUSING and HOUSING REPAIRS.

See W. Woodfall, *Law of Landlord and Tenant* (25th ed. by L. A. Blundell), 1954; L. A. Blundell and V. G. Wellings, *Landlord and Tenant Acts, 1927-54*, 1954 (with supplement 1955); Hill and Redman's *Complete Law of Landlord and Tenant* (ed. by W. J. Williams and M. M. Wells), 1955; R. E. Megarry, *The Rent Acts* (8th ed. by A. Bramall and P. Baker), 1955.

Landnámabók, or the Book of Settlements. It is the earliest historical record of Iceland, and is written in the Norse tongue. The first part tells of the discovery of the is., and the other 4 parts are detailed and faithful accounts of the settlers in its 4 quarters, with mention of their dwellings, palaces, temples, and descendants. Eng. trans. by T. Ellwood, 1894.

Landon, Letitia Elizabeth (1802-38), poetess, b. Chelsea. Many of her poems appeared in the *Literary Gazette* and similar pubs. over the initials L. E. L. She pub. separately *The Fate of Adelaide*, 1821, *The Improvisatrice*, 1824, *The Troubadour*, 1826, and *The Venetian Bracelet*,

1829. She also wrote a few novels, of which *Ethel Churchill*, 1837, was the best, and a tragedy, *Castruccio Castracani*, 1837. In 1838 she married George Maclean, governor of Cape Coast Castle in W. Africa; shortly after her arrival there she was found dead from an overdose of poison. Her *Life and Remains* were ed. by L. Blanchard, 1841; see also D. E. Enfield, *L. E. L., a Mystery of the Thirties*, 1928.

Landonr, Walter Savage (1775-1864), author, b. Warwick. He was educ. at Rugby and Trinity College, Oxford. He declined to be called to the Bar, and preferred to live on a small allowance from his father. He stayed for 3 years in the country, and in 1798 pub. his first poem, *Gebir*, which, though highly praised by the few, including Southey, Shelley, and Coleridge, did not attract the many. He spent a wandering life for many years, staying at Bath and other Somerset towns, and visited Paris in 1802. On the death of his father in 1805, he came into a handsome competence, and 3 years later went to Spain and served as a volunteer against the French. In 1811 he pub. his second book, *Count Julian*, a tragedy, which met with the same fate as its predecessor. He now bought the estate of Llanthony Abbey, married, and settled down as a country gentleman, but in 1814 he went abroad, where he resided until 1835. In 1824 he issued 2 vols. of *Imaginary Conversations*, and 3 more in 1828-9. This was his chief work, and in the 'conversations' a great procession of noble and gracious forms, of olden times and of a later day, pass sweetly or sadly before us. If the characters have little individuality, many of the dialogues show L.'s unfailing instinct for the heroic or tender: yet beneath every mask—Cicero, Diogenes, Lucian—the great solemn, flexible, and harmonious voice of 'that deep-mouthed Boeotian Savage Landonr' is plainly heard. From 1835 until 1858 he lived at Bath, and then went abroad, where he d. 6 years later. He was hopelessly irascible, but he contrived, by some happy chance, to remain on good terms with Dr Parr, and, later, with Browning. His poems are little read, but his prose has survived. He cared nothing for popularity or popular feeling, and was always convinced that his great merits as a writer would be recognised, as indeed they have been, by posterity. In his prose L. certainly found the manner most suited to his thoughts—in itself a rare achievement. Where he fails in prose it is not in style but in temper and in discretion, by harping too much on one point without at the same time revealing any critical power, though criticism was essentially a part of his *métier*. In style, however, as distinct from treatment, he was a prose master, and his individual stamp is at once easily recognisable in any detached passages.

With his verse the case is different. He never attained that mastery over verse which would have made it the fitting medium of his creative thought. Indeed he was himself sensible of this deficiency,



and never spoke of his verse so confidently as he did of his prose, of which, in fact, he was not a little vain-glorious; for he ranked himself as the best of contemporary prose writers. But if he mistrusted his hand in verse, it is admitted that he is above the second rank of poets; there are not many Eng. poets capable of the perfection and force he shows in his shorter poems, and, since Milton, few have written blank verse of so majestic and harmonious a tone. In this respect his *Gebir*, 1798, is to be ranked with Keats's *Hyperion*, while his *Count Julian* is wellnigh unsurpassed



W. S. LANDOR

In its own vein. In the same style as *Gebir* is *From the Phocaeans*, but far behind it, for it is involved in style and narrative, is generally obscure and often unnatural. L.'s real powers as a poet lay rather in the short poem—much the more appropriate instrument for the expression of his turbulent and rugged thoughts. He wrote a large number of brief poems and some of the best known of these have one source in common, his love for Ianthe, the most enduring feeling of his life. L. wrote a lot of Lat. verse, especially epigrams in the style of Martial and Catullus. His *Hellenics*—a group of narrative poems—in treatment sometimes recall the work of Ovid. Other works were *Pericles and Aspasia*, 1836, *Pentameron*, 1837, and *Poemata et Inscriptiones*, 1947. His complete works were ed. by T. E. Welby and S. Wheeler in 16 vols., 1922–36. See R. Bulwer-Lytton, *Reminiscences of Walter Savage Landor*, 1883; A. H. Mason, *Walter Savage Landor, poète lyrique*, 1924; G. J. Becker, *Landor's Political Purpose*, 1938; and lives by J. Forster, 1869; S. Colvin, 1881; H. C. Minchin, 1934; M. Elwin, 1942; R. H. Super, 1955.

Landrail, see CORNCRAKE.

**Landrécies**, Fr. tn in the dept of Nord, on the canalised Sambre. It is an anct fort. tn, and the bp. of Duplex (q.v.). Pop. 3500.

**Lands Clauses Acts**, see COMPULSORY ACQUISITION OF LAND.

**Land's End**, promontory of SW. Cornwall, England, which forms the most westerly point of the country. It is 9 m. SW. of Penzance. The End is a turf slope ending in a granite cliff about 60 ft. high. A natural tunnel pierces the headland, and there are interesting caves which can be visited at low tide. Dangerous rocks lie off the point; the Longships lighthouse (erected 1793) is situated about a mile out.

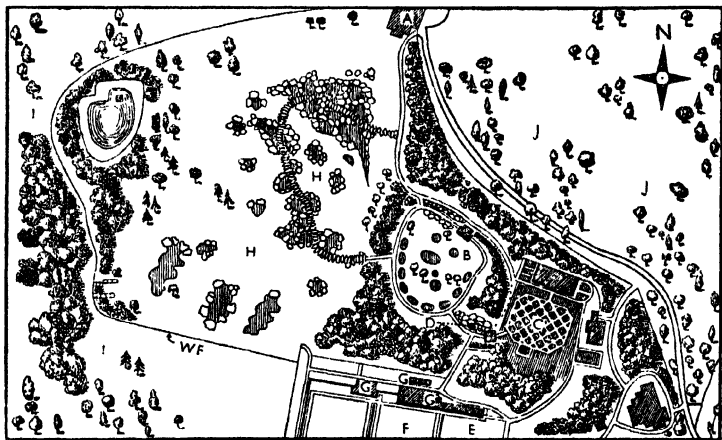
**Landsberg**, Ger. tn in the Land of Bavaria (q.v.), on the Lech, 33 m. W. by S. of Munich (q.v.). It has fine old walls and Gothic and rococo churches. During his imprisonment in the fortress of L., after the abortive *putsch* of 1923, Hitler (q.v.) wrote the first vol. of *Mein Kampf* (q.v.). Pop. 13,000.

**Landscape** (O.E. *landsceap*, *landscepe*; Dutch *landschap*), term in art applied to a picture representing a view of a country as seen by the artist. Among the most famous of L. painters are Hobbema and Ruysdael of the Dutch school, Claude, Corot, Rousseau, and Cézanne of the Fr. school, and the Eng. artists Constable, Turner, Richard Wilson, Crome, Bonington, and Gainsborough. The water-colour school, from Paul Sandby to Cotman, was strong and original mainly in landscape. The progress of L. from the late 18th cent. was towards the study of effects of light and atmosphere in the open air, from the sunny breadth of Wilson to the fleeting effects caught by Constable, and Turner's great range of view. Fr. impressionism may be looked on as the completion of this development and the last great phase of L. See also PAINTING, etc.

**Landscape Gardening** is gardening on a large scale, its aim being to produce a beautiful effect by means of the right juxtaposition and combination of open space, trees, water, and buildings. Such gardening was practised in early times by the Assyrians, Jews, and anct Greeks, but little authentic information is available with regard to the style of their gardens. It is possible that they paid greater attention to architecture, to the external appearance and internal comfort of a house than they did to the artistic arrangement of an estate. The Romans of the Augustan period and later built their luxurious villas amid a garden of shady trees, with cool porticoes, fountains, and marble terraces. They probably introduced the art of L. G. into Great Britain. The ruins of a Rom. villa were discovered over a cent. ago on the Blenheim estates, and it is conjectured that it was the central feature of Henry I's magnificent park at Woodstock. The Italians of the 15th cent. cultivated the art of L. G. Marble, which needs the background of an It. sky to set off its beauty, was used to great effect in terraces, fountains, and

steps. The gardens of Fontainebleau, set out by Francis I in direct imitation of those he had seen in Italy, were subsequently altered by Henry IV and Napoleon. Dutch gardening is characterised by its prim neatness, its smooth, carefully kept lawns, and trim hedges and bushes cut into fantastic shapes designed to represent animals. In Great Britain the gardens of Hampton Court and St James's were made by William III in emulation of the beautiful gardens of Versailles. Of modern Eng. landscape gardeners the

exhibiting. He passed through the Academy schools, took lessons from Haydon, became an associate of the Royal Academy at the earliest age possible (24), was an A.R.A. in 1826, and in 1830 a full member. His early work, as, for example, 'Dogs of St Gothard discovering a Traveller in the Snow,' 1820, and the diverting 'Cat's Paw,' is highly finished and shows his great knowledge of animal form, but the pictures of his maturity are tinged with sentiment which sometimes sinks to sentimentality, and he carried the habit of



LANDSCAPE GARDENING: REDLEAF, PENSURST, ABOUT 1850

The gardens made by Mr Wells in the early nineteenth century. From Loudon's *The Villa Gardener*.

A, the house; B, the English garden and summer-house, set in an old quarry; C, the Dutch garden with rustic orangery, Chinese dairy, and billiard room; D, an aquarium set in rock-work; E, the experimental garden; F, kitchen garden; G, conservatory, stores, and vinery; H, rock-work garden; I, wood, with exotic trees; J, pasture lawn, with ancient trees; WF, wire fence.

greatest have been Wm Kent (q.v., 1684-1748), who planned Richmond Park, and Lancelot Brown (q.v., 1715-83), commonly known as 'Capability Brown,' who remodelled Blenheim. See also GARDEN ART. See J. C. Loudon (q.v.), *Hortus Britannicus*, 1839, *Self-instruction for Young Gardeners and Foresters*, 1845, and *Encyclopaedia of Cottage, Farm, and Villa Architecture and Furniture*, 1846; H. Repton, *On Landscape Gardening*, 1840; F. R. Elliott and H. E. Milner, *Landscape Gardening*, 1890; T. H. Mawson, *The Art of Garden Making*, 1912, 1926; R. Sudell, *Landscape Gardening*, 1933; C. Tunnard, *Gardens in the Modern Landscape*, 1954.

Landseer, Sir Edwin Henry (1802-73), animal painter, b. London, was already sketching cows and horses from life at the age of 6, and 8 years afterwards began

crediting his animals with quasi-human feelings to an extreme. He developed, however, an amazing facility; the much-admired 'Cavalier's Pets,' 1845, was begun and finished in 2 days. In 'High Life' and 'Low Life,' 1829, and the splendid 'Drover's Departure,' 1835, L. carefully interweaves a human with the animal interest, whilst 'Jack in Office,' 1833, and 'Dignity and Impudence,' 1839, afford typical illustration of his humorous vein. 'The Monarch of the Glen,' 1851, nobly evinces his sense of the dramatic, and 'The Old Shepherd's Chief Mourner,' 1837, his sense of pathos. It is said that L. was a neurotic and that in 1840 he had a severe breakdown, from which he seemed to make a complete recovery; but 20 years later his mind again became seriously disordered and there were seasons when his depression was so extreme that he

became the victim of hallucinations and delusions that bordered on actual dementia. It may be mentioned that in 1866 he refused the position of president of the Royal Academy. He was buried with considerable ceremony at St Paul's Cathedral and a special L. sermon was preached the day after his funeral.

L. emerges out of almost any drawing test as a good artist. But handling of paint is his really strong point, and in fact his colour has a much underestimated vitality and charm. His chief defect as a painter lies in his inadequate grasp of large-scale structure, and usually his landscape background has an unsatisfactory wooliness of form. But landscape was only an accident of his work, which was mainly concerned with dogs and stags, and here sometimes he distorts the forms of his animals for sentimental, non-aesthetic reasons and as if to give expression, not to the animal's emotions, but to his own or his public's favourite emotions. Yet for most of his life L. was the most popular animal painter in Europe. His reputation was to some extent helped by his coming from a family of engravers who could popularise his work, and partly to his great vogue with Queen Victoria and Prince Albert. His real ability must be set against an occasionally mawkish sentimentalism which was one of the objects of Pre-Raphaelite attack in 1848. His famous lions in Trafalgar Square were uncovered in 1869. See lives by F. G. Stephens, 1880, and J. A. Manson, 1902. See also *Landseer and Animal Painting in England*, 1891.

**Landshut**, 1. Ger. tn in the *Land* of Bavaria (q.v.), on the Isar (q.v.), 38 m. NE. of Munich. In the 14th cent. it was the seat of the dukes of Bavaria-L. It was ravaged by plagues in the 15th cent., was sacked twice during the Thirty Years War (q.v.), and was occupied by the Austrians, 1704-15, and again in 1742. In 1809 the Austrians defeated the Bavarians here, but were themselves defeated 5 days later by Napoleon I (q.v.). L. was a univ. city, 1800-25. There are sev. fine Gothic and Renaissance churches, a Renaissance palace, and a 13th-cent. convent. Machinery, rope, chemicals, and beer are manuf. Pop. 50,000.

2. See KAMIENNA GÓRA.

**Landskrona**, seaport on the E. side of the Sound, in the prov. of Malmöhus, 15 m. NE. of Copenhagen, in Sweden. It has an excellent harbour, and is engaged in sugar-refining, tanning, and other industries. It has large dockyards and an important bacon-exporting industry. It also makes tobacco and iron-castings. Many battles took place in its neighbourhood during the 16th and 17th cents., and in 1667 it was the scene of a great naval victory of the Swedes over the Danes. Formerly it was called Landor and was strongly fortified. Its old castle has been transformed into an arsenal and prison. Pop. 26,237.

**Landslips**, falls of rock or large portions of land which have become detached from their original position. L. occur where

the relief is high, as in mountainous country, on sea cliffs, and steep riv.-banks. There are 2 prin. kinds: the slip of a uniform mass of material which has become charged with water and thus weakened, and the slip of a readily permeable rock such as a sandstone or fissured limestone along the junction with an underlying impervious layer such as a clay which holds up the water. L. occur along curved slip planes and leave the land surface in a characteristically uneven condition. The slip of Chalk on the underlying Gault clay can be seen on sev. of the cliffs of SE. England, notably near Folkestone and on the Is. of Wight. L. are particularly likely to occur after heavy rain or during a thaw.

**Landsteiner, Karl** (1868-1943), pathologist, b. Vienna, where he studied at the univ. and was M.D., 1891. He worked as a pathologist in Vienna (1898-1919) and at The Hague before going in 1922 to the U.S.A., where his early work on serology and immunology came to its fruition at the Rockefeller Institute. His work on human blood groups was the foundation of the great progress made in this field. His classification of blood groups (1900) made blood transfusion safe. He was co-discoverer of the Rhesus factor in human blood (1940). He also made important contributions to treatment of infantile paralysis. His Nobel prize (1930) was only the most famous of the many honours conferred on him by scientific foundations in Europe and America, including the Paul Ehrlich medal of the Ger. Academy of Natural Science; he was elected a foreign member of the Royal Society in 1941.

**Lane, Sir Allen Lane Williams** (1902- ), publisher, b. Bristol, educ. at Bristol Grammar School. In 1919 he was apprenticed to the publisher John Lane at The Bodley Head, and continued there until 1936 when he resigned and founded Penguin Books (q.v.) Ltd. He was knighted in 1952.

**Lane, Edward William** (1801-76), Eng. Arabic scholar, began life as an engraver, but finding this profession too much for his health went to Egypt (1825-8). On this occasion he explored the Nile, making many sketches. During his second visit (1833-5) he made Cairo his centre. Later (1842-9) he spent 7 years in Egypt, where, under the name of Mansur Effendi, he lived like an oriental scholar. Most of his time was spent in laborious research, of which the chief fruit was his monumental Arabic lexicon (1863-74), which was unfinished when he d. It is based on the careful compilation of Sheikh Murtada, who lived in the preceding cent. Others of L.'s works are *An Account of the Manners and Customs of the Modern Egyptians* (2 vols.), 1836, (5th ed., 2 vols., 1871), *Arabian Nights* (3 vols.), 1839-41 (ed. by S. Lane-Poole, 4 vols., 1906), *Selections from the Kur-an*, 1843 (2nd ed., 1879), and *Cairo Fifty Years Ago* (ed. by S. Lane-Poole), 1896.

**Lane, Sir Hugh Percy** (1875-1915), art connoisseur and collector; b. Ballybrack, co. Cork, son of Rev. James Wm L.,

rector. Entering Colnaghi's, Pall Mall, in 1893, he set up for himself as art dealer in 1898, and his acumen made him a fortune. In 1903 he exhibited pictures in Dublin, and bought most of them as nucleus of a gallery. Failing an arrangement for a Dublin gallery, he deposited the pictures in the National Gallery, London. They have provided the nucleus for the Tate Gallery's collection of Modern Foreign art, though argument has persisted as to whether, morally, if not legally, they should go to Ireland. Knighted in 1909, in that year L. advised Johannesburg Corporation on the formation of their gallery, and collected for Cape Town gallery. Director, Irish National Gallery, 1914. Returning from America in the *Lusitania*, he was drowned in the torpedoing of that ship.

**Lanercost**, par. of NE. Cumberland, England. Traces of the Rom. wall are to be found. L. Priory, founded in 1169 by Robert de Vallibus, governor of Carlisle, now forms part of the church of St Mary Magdalene. The *Chronicle of Lanercost*, 1201-1346, an important historical authority, was composed at Carlisle. Pop. about 1000.

**Lanesborough**, mkt tn of co. Longford, Rep. of Ireland, at the N. end of Lough Ree (q.v.). Pop. 350.

**Lanfranc** (c. 1005-89), Archbishop of Canterbury, b. Pavia, where he studied civil law. In 1039 he founded a school at Avranches, but 3 years later entered the Benedictine monastery at Bec and was chosen prior in 1045. He defended the doctrine of transubstantiation in the controversy raised by Berengarius, afterwards publishing his theories in a tract *De corpore et sanguine Domini*, 1079. William of Normandy appointed him prior of an abbey at Caen (1063), and after the Conquest created him primate of England (1070). L. was a superb administrator, and under his primacy the Eng. Church was reformed in many aspects and brought into closer unity with Rome and the Continent. In internal church affairs William appears to have allowed L. complete authority. L. campaigned against clerical marriage, and his selection of Norman abbots for Eng. monastic estab. did much to revitalise Eng. monasticism. He began the rebuilding of Canterbury Cathedral in Norman style. L.'s works were pub. by Luc d'Archery in 1648, and there is a later ed. by J. A. Giles (1844). See life by A. J. Macdonald, 1926. See also Z. N. Brooke, *The English Church and the Papacy*, 1931.

**Lanfrey, Pierre** (1828-77), Fr. historian, studied law at Grenoble and Turin. His *L'Eglise et les philosophes au XVIII<sup>e</sup> siècle*, 1855, and his *Essai sur la révolution française*, 1857, at once gave him a position among contemporary men of letters. But his *magnum opus* was his *Histoire de Napoléon I<sup>er</sup>*, 1867-75.

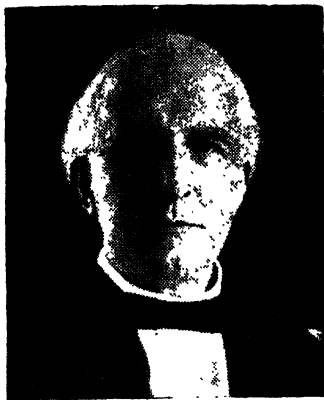
**Lang, Andrew** (1844-1912), scholar, folklorist, poet, b. Selkirk. Educ. at Edinburgh Academy, St Andrews and Glasgow Univs., and Balliol College, Oxford, he was elected a fellow of Merton. He then entered on a literary career, and

soon estab. a reputation of being one of the most versatile of modern writers. His earliest pub. was a vol. of dainty and graceful verse, *The Ballads and Lyrics of Old France*, 1872, which were followed by *Ballads in Blue China*, 1880, *Helen of Troy*, 1882, *Ballads and Verses Vain*, 1884, *Rhymes à la Mode*, 1884, *Grass of Parnassus*, 1888, and *New Collected Rhymes*, 1905. His delightful selections of fairy-tales began in 1889 with the pub. of the *Blue Fairy Tale Book*, followed by others, all tastefully bound and illustrated, and written with classic simplicity, down to the *Olive Fairy Book*, 1907. In the realm of folklore L. produced sound scholarly work in his *Custom and Myth*, 1884, and *Myth, Literature, and Religion* (2 vols.), 1887; and contributed to the study of primitive religion and anthropology in *The Making of Religion*, 1898, *Magic and Religion*, 1901, *Social Origins*, 1903, and *The Secret of the Totem*, 1905.

As an historian L. was keenly interested in mysteries, to the unravelling of which he brought great ingenuity as well as a scholarly accuracy in detail. He brought fresh light to bear upon Mary of Scotland in *The Mystery of Mary Stuart*, 1901, and *Portraits and Jewels of Mary Stuart*, 1906. Mention may also be made of his *History of Scotland from the Roman Occupation*, in 4 vols., 1900-7. He also contributed to the controversy on the 'Man in the Iron Mask' (q.v.) in his *The Valet's Tragedy*, 1903, and interested himself on behalf of the Young Pretender in *Pickie the Spy*, 1897, *The Companions of Pickie*, 1898, and *Prince Charles Edward*, 1900. L. was also a classical scholar of high standing, which is testified in his Homeric studies, *Homer and the Epic*, 1893, and *Homer and his Age*, 1906; in his trans. of Theocritus, Blon, and Mochus, 1880, *The Homeric Hymns*, 1899; in collaboration with S. H. Butcher, of the *Odyssey*, 1879, and, with E. Myers and Walter Leaf, of the *Iliad*, 1883. In 1888 he was elected the first Gifford lecturer of the univ. of St Andrews. He ed. the Eng. Worthless Series, the works of Scott, Burns, and Dickens, and the life and letters of J. G. Lockhart and of Sir Stafford Northcote. He was at one time literary editor of *Longman's Magazine*, and up to the time of his death contributed to the *Morning Post* and various other papers. His other writings, of a miscellaneous character, each in its particular way of real merit, are too numerous to mention. See G. Saintsbury, *Andrew Lang*, 1923, and *Andrew Lang in the 'Seventies—and After*, 1929; M. Beerbohm, *Life and Letters of Andrew Lang*, 1929; R. S. Rait, *Andrew Lang as Historian*, 1930; A. B. Webster, *Andrew Lang's Poetry*, 1937; R. L. Green, *Andrew Lang, a Critical Biography*, 1946.

**Lang, Cosmo Gordon** (1864-1945), archbishop, son of Very Rev. John Marshall L., D.D., principal of Aberdeen Univ. and sometime moderator of the Church of Scotland; b. Fyvie, Aberdeenshire. Educ. at Glasgow Univ. and Balliol College, Oxford, he became a law student of the Inner Temple; but, undertaking social

work in the E. End, he became increasingly aware of a vocation for the Church and on the eve of his call to the Bar he withdrew his name. He entered Cuddesdon Theological College and was ordained priest in 1891. He was curate at Leeds from 1890 till 1893, when he returned to Oxford, and was successively fellow and dean of Magdalen and vicar of St Mary's. He then became vicar of Portsea, where he laboured till 1901, when he was appointed Bishop of Stepney and canon of St Paul's. He was now recognised as one of the great preachers of the day. His experiences as the suffragan of the Bishop of London in Stepney were to stand him in good stead



*Topical Press*

COSMO GORDON LANG

when, at the age of 44, he was translated to the archiepiscopal see of York, where he succeeded Dr MacLagan. From 1909, when he was installed at York, the story of his activities is the story of the Church of England. His work was at the heart of every movement in the Church. As vice-president of the Church Assembly he showed a balance of mind which proved of immense value in what had become the legislative body of the Church. The enrichment of the liturgical portion of the revised Book of Common Prayer, its adaptation to modern usage and thought, and its preservation of the Catholic interpretation of the Church's standards, was largely attributable to his moderating influence. His sympathies were with the High Anglican section, but he held that a national Church must be wide enough to embrace all varieties of thought consistent with the belief in the essential dogmas of the Apostles' Creed. Only twice previously, in nearly 2 cents., had a primate been translated from York to Canterbury; but when in 1928 Dr Randall Davidson resigned, L. became his successor. National anxiety over the illness and death of King George V brought him

much before the public with his impressive broadcasts. The abdication of King Edward VIII made the position of Archbishop L. one of extreme difficulty. Many resented his attitude, but public opinion has shown that in the judgment of the majority L. took the right course in his support of the standards of the Church and in his interpretation of his function as primate thereof. L. was deeply interested in politics and he served on the joint committee on Indian reforms, besides working strenuously to promote closer relationships between the Eng. and Presbyterian Churches. An outstanding incident of his career when Archbishop of York was a highly successful visit he paid to the U.S.A. early in 1918 to emphasise the spiritual issues of the First World War. He was an ardent supporter of the alternative prayer book, which was ultimately rejected by Parliament in 1928. His hold on the Church Assembly was remarkable, his incisiveness and devastating criticism always winning the day and provoking the defeated minority to complain that the archbishop ought not to double the roles of Speaker and Prime Minister. In 1942, feeling that great tasks of reconstruction in Church and State must follow the Second World War, when the Lambeth Conference would meet, and that such work needed a younger man, he resigned and was created Baron L. of Lambeth. His pub. include *The Miracles of Jesus as Marks of the Way of Life*, 1900, *The Parables of Jesus*, 1906, and *The Opportunity of the Church of England*, 1906. See life by J. G. Lockhart.

Lang, John, see AUSTRALIAN LITERATURE.

Lang, John Thomas (1876- ), Australian statesman, b. Sydney. He entered politics as member of the legislative assembly of New S. Wales in 1913, and in 1923 became leader of the New S. Wales Labour party. Premier and treasurer, 1925-7, and 1930-2, he was determined to push on with the programme of social welfare. During the depression L. became the spokesman for the more militant section of the Labour party and launched a powerful offensive against economy, retrenchment, and deflation. He came into conflict with the federal gov. on the issue of repudiation, and the governor of New S. Wales, Sir Philip Game, dismissed him from office on constitutional grounds. He resigned as member of the legislative assembly in 1946 to contest a federal seat and was member of the House of Representatives for Reid, New S. Wales, 1946-1949. See his *Why I Fight*, 1934.

Langdale Pikes, 3 fells at the head of Great Langdale in Westmorland, England, known as Harrison Stickle (2401 ft), Pavey Ark (2351 ft), and Pike o' Stickle (2323 ft).

Langdon, John (1741-1819), Amer. merchant and politician, b. Portsmouth, New Hampshire. After leading a seafaring life he became a merchant, and took part in the first overt acts against the Brit. Crown committed in his native colony. He became a member of the

Continental Congress, and in 1776 was made an agent of prize money for New Hampshire, and also naval agent for the Continental Congress, securing the building of some of the ships used by the famous John Paul Jones. He served for a time in the War of Independence, took part in the Constitutional convention, was in Congress for sev. terms, and then U.S. Senator from New Hampshire, being at one time president *pro tem.* of that body. In the latter part of his life he served as governor of his state.

**Lange, Christian Louis** (1869-1938), Norwegian pacifist and historian, *b.* Stavanger. L. was secretary of the Nobel Commission of the Storting from 1900 to 1909, and also a member of the Nobel prize committee. In 1907 he was Norwegian delegate to the International Peace Conference at The Hague. He represented Norway at the League of Nations from 1920, and was awarded the Nobel peace prize in 1921. His most outstanding pub. was *History of International Relations from 1814, 1919 seq.*

**Langeland, or Long Island, Dan. is.** in the Great Belt between the is. of Fyn and Lolland, is 33 m. long; area 106 sq. m. It is cultivated, and exports corn, flax, and timber, dairy produce, and fish. Rudkøbing on the W. coast is the chief tn. Pop. 19,520.

**Langensalza, Ger. tn** in the dist. of Erfurt (q.v.), near the confluence of the Salza and the Unstrut, 18 m. WNW. of Erfurt (q.v.). It was an important tn. of the Teutonic Knights, and passed to Prussia in 1815. The Prussians defeated the Hanoverians here (1866) in the Seven Weeks War. There are engineering and textile industries. Pop. 17,000.

**Langenscheidt, Ger. publishing house,** founded by Gustav L. in Berlin, 1856, by issuing correspondence courses in French and, later, in English, introducing phonetic spelling. In 1867 the founder estab. his own printing-office, and in association with Charles Toussaint pub. a Fr. dictionary. After Gustav L.'s death, 1895, the business was carried on by his son, Carl L., and various new dictionaries were pub., notably the *Muret-Sanders* for English, and books for commercial correspondence. The *Lilliput* dictionaries in miniature format were introduced in 1930. The house was completely destroyed by bombs in 1944, but started business again 3 years later, when the founder's great-grandson became the head of the firm, and it soon regained its international pre-war renown. It now publishes over 250 dictionaries and text-books in 23 foreign languages, and issues monthly instructional reviews in German, French, and English.

**Langenthal, small tn** in the canton of Bern, Switzerland. Pop. 9000.

**Langerhans, Paul** (1847-1888), Ger. anatomist, *b.* Berlin. He was educ. at Jena and Berlin, qualifying in medicine in 1869 with a thesis, *Beitrag zur mikroskopischen Anatomie der Bauchspeicheldrüse*. Berlin, 1869, which gave the first description of the islets in the pancreas

now named after L. A reprint of the book with Eng. trans. was pub. 1937. L. became demonstrator of anatomy at Freiburg-im-Breisgau, but a lung injury caused him to leave and take up general practice at Funchal, Madeira, where he *d.* Besides his work on the pancreas he discovered (1869) cells in the epidermis ('L.'s cells') and (1873) the stratum granulosum of the skin ('L.'s layer').

**Langevin, Paul** (1872-1946), Fr. physicist, *b.* Paris. Joining the Curies (q.v.) in research work, he was made assistant prof. in the Collège de France in 1902, and appointed to the chair of general and experimental physics in 1909. In 1925 he became director of the school of physics and chem., succeeding Curie. He discovered the secondary rays of X-rays and introduced Einstein's (q.v.) theory of relativity into France, also doing research into supersonic waves and applying the results to the detection of submarines. Later he became scientific adviser to the Fr. atomic energy commission.

**Langham, Simon de** (c. 1310-76), Archbishop of Canterbury; *b.* Rutland. He became prior and abbot of Westminster in 1349, and carried out important works in the abbey, including the completion of the cloisters. In 1360 he was appointed treasurer of England, in 1361 he became Bishop of Ely, and in 1363 became chancellor. In 1366 he was chosen Archbishop of Canterbury, and in 1386 he was made cardinal, leaving England in 1389 for Avignon, where he *d.* His tomb is the oldest eccles. monument in Westminster Abbey.

**Langholm, burgh and mrkt tn** of Dumfriesshire, Scotland, 22 m. N. of Carlisle on the R. Esk. The sheep fairs are famous; L. has tanneries and a distillery, and is noted for tweed. The anct. ceremony of riding the marches (the Common Riding) is held annually on the last Friday of July. Pop. 2500.

**Langhorne, John** (1735-79), clergyman, poet, and translator, *b.* Kirkby Stephen, Westmorland. He was educ. at Appleby and Cambridge, and after filling sev. curacies became rector of Blagdon, Somerset, in 1766. He wrote for the *Monthly Review*, and pub. sev. vols. of popular poetry including *Genius and Valour*, 1764. His most important work is the trans. of Plutarch's *Lives*, written in conjunction with his brother, Wm L. (1771-2).

**Langland, William** (c. 1332-c. 1400), poet, *b.* probably in the W. Midlands. Scanty details of his life are gathered from the poem attributed to him. Educ. at the Benedictine monastery at Malvern, he became a clerk in minor orders, went to London and lived with his wife and daughters in Cornhill, making a precarious living as a scrivener, by singing requiems for the dead, and sometimes by begging. His experience of poverty and hardship comes out in the vivid sincerity of the pictures he draws in his work. The first version of the great poem generally taken as his, *The Vision of William Concerning Piers the Plowman*, was written about

1362; about 1377 a greatly expanded version was produced, a third about 1392, and he went on revising and adding to it till his death. The 3 versions are distinguished as the A, B, and C texts, and some scholars have maintained that they are the work of sev. hands, but this theory of multiple authorship is not now generally accepted. The poem takes the form of an allegory, the author having a vision of 'a fair field full of folk' (the world), in which Reason, Theology, Conscience, the Seven Deadly Sins, and other abstractions are depicted as living and moving. In a second section a search is made for Do-well, Do-bet, and Do-best (the good, better, and best ways of life), with the help of Thought, Wit, and Study. Later additions are concerned with the corruptions of the Church, for L., though a good Catholic, was an earnest reformer, and his poem is a powerful though confused satire. Apart from its literary value, it is of the first importance for the light it throws on the social hist. of the time. Almost exactly contemporary with Chaucer, L. forms an interesting contrast to him, for he represents the close of the old Eng. tradition of alliterative verse, which was superseded by the Fr. rhyming measures that Chaucer popularised. The standard ed. of *Piers Plowman* is that of W. W. Skeat, 1886; there are modern renderings by N. Coghill, 1949, and D. and R. Attwater, 1957. See E. Bernard, *William Langland, a Grammatical Treatise*, 1874, and A. Bright, *Langland and the Seven Deadly Sins*, 1930.

**Langley, Samuel Pierpont** (1834-1906), Amer. physicist and astronomer, b. Roxbury, Boston, Massachusetts. He was prof. of mathematics at the U.S. Naval Academy (1866), director of the Allegheny Observatory, Pittsburgh (1867-87), and secretary to the Smithsonian Institution, Washington (1887-1906). He made a special study of aeronautics and succeeded in showing the feasibility of mechanical flight. He carried out his experiments on the Potomac R., and, after making sev. attempts with various machines, flights of over half a mile were made in 1896. L. invented the bolometer, with which he discovered, in 1881, the new spectrum, an extension of the invisible infra-red rays. He also observed the total solar eclipses of 1869, 1870, and 1878.

**Langmuir, Irving** (1881- ), Amer. physicist, b. Brooklyn, New York. He has carried out researches on the nature of valency, the structure of the atom, atomic hydrogen, surface chem., etc. His invention of the atomic hydrogen blowpipe has proved of great commercial and industrial importance as a means of obtaining very high temps. He also invented the gas-filled tungsten filament lamp. He was awarded the Hughes medal of the Royal Society in 1918 and the Nobel prize in chem. in 1932.

**Langnau**, com. in the canton of Bern, Switzerland. It manufs. cheese, thread, and all kinds of woodwork. It is the agric. centre of the Emmental (q.v.). Pop. 9000.

**Lango**, Nilotic people of central Uganda, cultivating and herding cattle on the grasslands N. of L. Kioga. To-day they number about 300,000, and are progressive cotton farmers. See J. H. Driberg, *The Lango*, 1923.

**Langon**, Fr. tn., cap. of an arron., in the dept of Gironde, on the Garonne. It has a trade in wines. Pop. 5200.

**Langport**, mrkt tn of Somerset, England, on the R. Parret. It was the scene of a Parliamentary victory on 10 July 1644. About 4 m. N. of L., near High Ham, is Turn Hill, from which a view is obtained across Sedgemoor (q.v.) to the Quantock Hills. Priest's House, Muchelney, 1½ m. S. of L., was acquired by public subscription in 1911. Pop. 800. L. Beds is the name given to a local facies of the white lias, about 20 ft in thickness, of white or grey or cream-coloured limestones, with marl.

**Langreo**, Sp. tn in the prov. of Oviedo. It has coal- and iron-mines, has iron manufs., and is a mrkt tn. Pop. 49,000.

**Langres** (anct Andematunum), Fr. tn in the dept of Haute-Marne, cap. of an arron., situated on a spur of the L. plateau near to the source of the R. Marne. There are remains of a Rom. tn. L. is the seat of a bishop, and the fine cathedral dates from the 12th cent. Diderot (q.v.) was b. here. High quality cutlery is manuf., and there are breweries. Pop. 7200.

**Lang-son**, cap. of prov. of same name in NE. Tonking (q.v.) situated in a small plain 1000 ft above sea-level on the l. b. of R. Ky-cung. It is close to the Chinese frontier and has been the scene of a number of battles, the best known being that between the French and Chinese in 1885. The inhab. are Tho, Nung, Man, and Vietnamese.

**Langton, Stephen** (c. 1150-1228), Eng. statesman and Archbishop of Canterbury. Little is known of his early life, but he was an outstanding scholar at Paris Univ., and in 1207 was consecrated to his archbishopric by Pope Innocent III. It was not till 1213 that L. was formally recognised by King John. In 1214 he urged the confirmation of Henry I's charter, a suggestion which probably directly inspired certain of the barons to draw up the Great Charter, and in the following year was suspended from his see for not enforcing the papal censure of the barons. He was a fearless opponent of royal or papal authority where they conflicted with his convictions, but his political career was thrust on him by the pressure of events. L. was an outstanding theologian. See F. M. Powicke, *Stephen Langton*, 1928.

**Langtry**, Lillie (1852-1929), actress, b. Jersey, Channel Is., daughter of the Dean of Jersey. Her maiden name was le Breton and her surpassing loveliness gained her the title of the Jersey Lily. She married Edward L. of the Diplomatic Service in 1874 and made a sensation in Eng. society, becoming an intimate friend of the Prince of Wales, afterwards Edward VII. She went on the stage under the management of Sir Squire and Lady Bancroft at the Haymarket Theatre

in 1881. Her success was then due more to her beauty and position in society than to her acting, but her acting improved and she worked hard. She became an actress-manageress and built the Imperial Theatre in Westminster. She was especially good in the part of Rosalind. She married as her second husband Sir Hugo de Bathe and went in for horse-racing, maintaining a large and successful stable. She was also successful in America, and *d.* there in 1929.

**Language.** This term indicates a highly symbolical method of articulate utterances for conveying ideas. Some scholars define *L.* as a system of arbitrary vocal symbols by which members of a social group co-operate and interact. There are other means of expressing ideas, such as signs and inarticulate sounds. The former may take the place of articulate speech, or, more commonly, emphasise or modify the sense of the uttered word. The latter belong principally to animals, and in the human species express the simple ideas of infants and of those under stress of emotion preventing more deliberate utterance, but neither of them is as complete as *L.* It will suffice to point out the contrast of the immense variability of human speech with the simplicity, the invariability, and monotony of animal cries.

See also LANGUAGE, ORIGIN OF; LANGUAGES, CLASSIFICATION OF; LINGUISTIC SCIENCE; PHILOLOGY; PHONETICS.

See H. Paul, *Prinzipien der Sprachgeschichte* (5th ed.), 1920; E. Sapir, *Language*, 1921; J. Vendryes, *La Langue*, 1921; F. de Saussure, *Cours de linguistique générale*, 1922; O. Jespersen, *Language, its Nature, Development, and Origin*, 1922, and *Mankind, Nation and Individual*, 1948; A. Trombetti, *Elementi di glottologia*, 1922-3; C. K. Ogden and I. A. Richards, *The Meaning of Meaning*, 1923; K. Britton, *Communication: a Philosophical Study of Language*, 1939; L. H. Gray, *Foundations of Language*, 1939; M. Schlauch, *The Gift of Tongues*, 1943; E. H. Sturtevant, *An Introduction to Linguistic Science*, 1948; M. Cohen, *Le Language: Structure et Évolution*, 1950.

**Language, Origin of.** Since ancient times various theories have been advanced as to the origin of *L.* It was formerly assumed, and it is still believed by some people, that ready-made speech was a direct gift from the Creator to the first man (Gen. xi. 1-9). This theory, upheld for instance in 1766 by Stämmilch, has been accepted as recently as in 1948 by H. Homeyer. The ancient Egyptians attributed the creation of speech to Thoth; the ancient Indians to the god Indra; Chinese myths to a demigod who first gave names to animals and plants; Greek tradition to Hermes; the ancient Scandinavians to the 'third son of Borr,' who gave men 'form, speech, hearing, and sight.' Another theory, the 'conventional' one, suggested that *L.* was a conscious invention of man; far from being a gift from the Creator to mankind, it was a gift from mankind to the Creator. It is interesting

to note that some scholars found in Gen. ii. 19-20 'an adequate and straightforward account of the human invention of speech': '... and whatsoever the man called every living creature, that was the name thereof. And the man gave names to all cattle, and to the fowl of the air, and to every beast of the field...' On the other hand, in the opinion of the eminent linguist Richard A. Wilson, the emergence of consciousness in human beings freed man intellectually, via the process of language, from space and time and set him apart from other animals.

The third main theory, that of the 'naturalist' school, is that *L.* was a spontaneous product of human nature. When Darwin pointed out the biological kinship of man with lower animals, it became the intellectual fashion to look for 'evolution' in all matters concerning living things, including *L.* There was the *bow-wow* theory (derisively so called by Max Müller) suggesting that primitive words imitated natural sounds, especially those made by animals. This is also known as the 'onomatopoeic' theory and is exemplified by such words as lullaby. There was the *pooh-pooh* theory (also Müller's term), propounding that the primitive words were ejaculations called forth by strong emotions, such as surprise, joy, grief, pain, dread. This theory is also known as 'interjectional.' Some scholars suggested that the expression of fear was connected with a high sound like Eng. *ee*, lament by a deep one resembling Eng. *oo*, joy by a series of repeated *ah*. Müller himself at first suggested (but soon abandoned) the 'nativistic' or 'echo' theory, called derisively by his friends the *ding-dong* theory. It is the theory of typical sounds, according to which there is an inner harmony or agreement between sound and sense: an 'instinct of speech' led to the first utterance, which was a 'sonant sign' of the consciousness of some common act. 'There is a law which runs through nearly the whole of nature, that everything that is struck rings. Each substance has its peculiar ring.' Similar is the *yo-ho* or *yo-he-ho* theory. 'Under any strong muscular effort it is a relief to the system to let breath come out strongly and repeatedly, and by that process to let the vocal chords vibrate in different ways...' The sounds 'would come to be associated with the idea of the act performed and stand as a name for it; the first words would accordingly mean something like "heave" or "haul..."'

Other scholars suggest the 'gestural' or 'gesture' theory, which 'cannot explain many particular points of various languages, but it does clearly show the principle at work in the creation of languages.' In Sir Richard Paget's opinion, 'the original form of expression of all human ideas must be supposed to be that of bodily pantomime...' As he acted with his body, and more particularly with his hands, his tongue followed suit without his knowing it... The combination of mouth gesture and air current then produced speech.' Finally Jespersen's



'inductive' theory suggests the inferring of a general law from a number of particular instances. He traces the modern L.s as far back as possible, until he reaches 'uttered sounds of such a description that they can no longer be called a real language.' This may be regarded as scientific, but it is far from providing a solution of the vexed problem.

All these theories indeed explain only a very small part of L.; they hardly touch the core. Linguists now agree that the data at our disposal do not provide sufficient material for the solution of the problem of the origin of human speech; but during recent decades much knowledge has been gained of the prehistoric stages of the linguistic families (q.v.). Jespersen has suggested the following 3 main fields of investigation which, in his opinion, may help to solve the problem; but none of them has, so far, yielded any positive results. (1) *The language of children*: 'Here, in the child's first purposeless murmuring, crowing, and babbling, we have real nature sounds; here we may expect to find some clue to the infancy of the language of the race.' However, as Eric Partridge pointed out, 'mankind started from scratch, mankind had no words and no teacher: a child learns an already existing language, hears words all around him, has several teachers.' (2) *The language of primitive races*: Prof. E. H. Sturtevant rightly points out that 'as far as we know there is no indication that any language spoken to-day has had a shorter history or a slower development than any other.' (3) *The history of language*: 'The recorded history of language, even when supplemented by the prehistoric reconstructions of the comparative method (. . .), covers only a small fraction of the development to which language has been subjected since its origin. We can learn from the total of our material a great deal about the latter stages of this development, but it does not carry us appreciably nearer the beginning' (Sturtevant).

The problem of the origin of L. is strictly connected with the problem of its *monogenetism* or *polygenetism*, i.e. Was there a single or multiple origin of speech? Have all the existing forms of speech, and those which existed in the more or less distant past, descended from one L.? Is every L. thus related to every other? No answer can be given to these questions. Apart from the scholars who still believe in their own interpretation of the biblical story (see above), the theory of linguistic monogenesis has been upheld by eminent linguists such as the It. Prof. Alfredo Trombetti, and, more recently, Prof. Carlo Tagliavini, while the polygenetic theory has been propounded by other scholars such as Friedrich Müller.

See also LANGUAGE; LANGUAGES, CLASSIFICATION OF; LINGUISTIC FAMILIES; LINGUISTIC SCIENCE; PHILOLOGY; PHONETICS.

See W. D. Whitney, *Life and Growth of Language*, 1882, and *Language and the Story of Language*, 1910; R. L. Garner,

*Apes and Monkeys: their Life and Language*, 1900; E. H. Sturtevant, *Classical Weekly*, xvi, pp. 34 ff., 1922, and *An Introduction to Linguistic Science*, 1948; O. Jespersen, *Language, its Nature, Development, and Origin*, 1922; J. Vendryes, *Language, a Linguistic Introduction to History* (trans. P. Radin), 1925; R. M. Yerkes and B. M. Learned, *Chimpanzee Intelligence and its Vocal Expressions*, 1925; R. M. Yerkes, *The Great Apes*, 1929; W. N. and L. A. Kellogg, *The Ape and the Child*, 1933; R. A. Wilson, *The Miraculous Birth of Language*, 1939, 1948; G. Lane, *Studies in Philology*, xlii, pp. 465 ff., 1945; E. Partridge, *The World of Words*, 1948; W. S. Allen, 'Ancient Ideas on the Origin and Development of Language' (with bibliography), *Transactions of the Philological Society*, 1948 (London), 1949; J. Piaget, *Language and Thought of the Child*, 1948; M. Cohen, *Le Language: Structure et Evolution*, 1950 (with bibliography).

**Languages, Classification of.** L. can be studied either for practical purposes, i.e. as means of communication between members of a social group, or as a branch of knowledge in which they cease to be a means and become themselves the chief object of inquiry. They may be classified either according to their structure or according to their relationship with other L. (see LINGUISTIC FAMILIES).

Classified according to their structure, the 2500 to 3000 L. of the world fall into 3 groups, known as *isolating* or *monosyllabic* (neither of these terms is exact), *agglutinating* (or *agglutinative*), and *inflecting* (or *inflective*). Chinese is generally referred to as the type specimen of isolating L., not so much because each Chinese word is isolated from the rest as because the characters in its script are written separately one from the other, even if they are binomies or polysyllabic terms. There are various other more or less isolating L. in SE. Asia and in Africa (where there are perhaps 1000 different L.). Many of these L. are monosyllabic; Chinese, which was once an agglutinating language, is not pure monosyllabic, i.e. the suffix -ch'u, corresponding to Eng. '-ness', freely attached to adjectives, transforms them into nouns: hâu-ch'u, 'goodness' (from hâu, 'good'), ch'ang-ch'u, 'length' (from ch'ang, 'long'). There are bisyllabic compounds having quite different meanings from those of their component parts, i.e. t'ung-hsi means 'thing,' although t'ung means 'east' and hsi means 'west.' However, by far the greatest number of words are either rude monosyllables (exactly as 'housemaid' is made from 'house' and 'maid'). Moreover the root never changes; the same word can be a verb, a noun, an adjective, an adverb (e.g. ta means 'great' or 'greatly' or 'greatness' or 'to be great,' etc.). The meaning of a word is determined only by its place in the sentence (e.g. wô p'ü p'ä t'ä means 'I not fear him'; t'ä p'ü p'ä wô means 'he not fears me'). The Chinese grammar is comparatively simple and logical, e.g. the singular genitives of the 3 persons are wô-ti, ni-ti, ta-ti, while the plural genitives

are *wōmen-ti*, *nimen-ti*, and *tamen-ti*. It can thus be inferred that the nominatives are *wō*, *nī*, *tā*, for singular, and *wō-men*, *nī-men*, *tā-men*, for plural. Tenses are expressed by adding auxiliary verbs rather than conjugation. Its grammar is thus less marked than its syntax. English is perhaps nearest to Chinese as far as the simplicity of its grammar is concerned.

In speaking Chinese or an allied language (such as Burmese) voice inflection is of importance in giving the proper meaning to a word. The characteristic Chinese 'tones' are indeed just as important as the vowels themselves; they are so characteristic in some L. that the latter are sometimes termed polytonic. A word pronounced on a level tone (˘) means one thing; on a rising tone (ˊ) another; on a dipping tone (ˋ) another; and on a falling tone (ˊˋ) another. If the Chinese words with their specific tones were recorded in strictly phonetic signs, they would be seen to be totally different words with different sounds, not different 'tones' of the same sound. That they have been misunderstood to be 'acoustic pitches' or changes of pitch is due to a lack of knowledge about the spoken language. For instance, the so-called 'falling tone' in fact denotes the original final consonant '-k', '-ŋ', or '-l' of a syllable (e.g. the 'Yat' in Dr Sun Yat-sen). The number of tones varies from language to language, from dialect to dialect. While, for instance, Burmese has only 2 tones, Siamese and Cantonese each has 6.

The agglutinating L. form the largest of the 3 groups. To it belong those L. (e.g. Japanese, Korean, the Caucasian forms of speech, the ancient Sumerian and Elamite, the Ural-Altaic family, various Amerindian linguistic groups, and many others) in which root words are united by juxtaposition only, i.e. if it is desired to modify the sense of a word in respect to time, place, or other relation, this is done by adding a prefix or a suffix, i.e. by incorporation of a vowel or a syllable with the main word. Many Eng. words, once classed as compounds, are agglutinated words, e.g. aforementioned, offshoot, matter-of-fact, fishmonger, homesick, and so forth. Various Amerindian dialects are not only agglutinating but polysynthetic or incorporative, i.e. many single words incorporate the conception of a whole sentence. This may be seen, for instance, in such names as that of the famous Azteca 'emperor' Montezuma or Montecuzoma (really Montecuzomal-thulca-mina), meaning 'When-the-chief-is-angry-he-shoots-to-heaven.'

Inflecting (from 'inflect', meaning to bend, to change the form of, to vary) L. are those in which words are susceptible of some slight modifications, which are known to grammarians as inflections, or flexions, or internal changes. This term may be applied to the changes in verb forms (by conjugation) or in noun forms (by declension) by the addition of one or more letters (school, schools; class, classes; (to) love, (he) loves; loved, beloved), or by changes within the words themselves (man,

men; foot, feet; (to) write, wrote; may, might). Inflecting L., however, contain both monosyllabic and agglutinative as well as inflected words. In modern English we have few inflections left, though at one time the language had many. The major ones are those which have to do with numbers and tenses respectively. Ancient Indo-European L. (e.g. Sanskrit, Greek, Latin, and the modern German, Russian, Polish, or Lithuanian, have numerous inflections. The Lat. noun, for instance, had 7 declensional endings: nominative, vocative, accusative, genitive, dative, ablative, and locative. Lat., Gr., Ger., Polish, and other verbs have many suffixes to show tense, number, gender, mood, activity, or passivity of the action, and so forth.

In the other main inflecting linguistic family, that is in the Semitic L., internal variation in the roots plays the most important part in inflection. One striking feature of grammatical structure is common to all Semitic L., i.e. a marked preference for verbal roots using 3 consonant sounds. The characteristic core of the word, be it a noun or a verb or an adjective, called the triliteral root, gives us the fundamental conception, and is represented by consonants, while the vowel sounds (either as prefixes or suffixes or as changes within the words) give us only the complements, the details, such as the part of speech, the voice, the mood, the tense, the declension, i.e. in Hebrew the consonantal abstraction of the root k-t-b indicates any word having a meaning connected with writing, although there is no such word as ktb. On the other hand k-t-b means 'I am, you are, he is' writing'; k-t-b means 'I shall write'; k-t-b 'he wrote'; k-t-b 'writings,' and so on. See also INDO-EUROPEAN LANGUAGES; LANGUAGE; LANGUAGE, ORIGIN OF; LINGUISTIC FAMILIES; and bibliographies of these articles.

**Languedoc**, former prov. of France, united under one authority about the beginning of the 13th cent. The name is Provençal and means 'the tongue of *oc*', *oc* being the S. form of the N. *oui*. In 1791 L. was replaced by the 8 depts of Haute-Loire, Lozère, Ardèche, Aude, Tarn, Hérault, Gard, and Haute-Garonne. The cap. was Toulouse (q.v.).

**Languedoc, Canal du**, see MIDI, CANAL DU.

**Languet, Hubert** (1518-81), Fr. Huguenot, writer and diplomat, b. Vitteaux, Burgundy. He studied at the univs. of Poitiers, Bologna, and Padua, and spent much time in travelling through France, Italy, Spain, Germany, Sweden, Finland, and Lapland. In 1559 he entered the service of Augustus I, elector of Saxony. He represented the elector at the Fr. court (1561-72), and narrowly escaped death on St Bartholomew's Day, 1572. He was at the imperial court as representative of the elector (1573-7), after which he spent most of his time in the Netherlands. His letters to Augustus are important sources for the hist. of the 16th cent.

**Lanidae**, see **SHRIKE**.

**Lanier**, Sidney (1842-81), Amer. poet and critic, b. Macon, Georgia. His later years were a heroic struggle against the ravages of consumption, which finally mastered him. He graduated with honour from Oglethorpe College, and on the outbreak of the Civil war joined the Confederate army. In 1864, whilst acting as a blockade runner, his ship was captured, and for 5 months L. was confined in a Federal prison. Here his flute, which he had learned to play as a boy, helped to lessen the tedium of imprisonment. In 1873 he was flautist in the orchestra at the Peabody concerts, Baltimore, and in 1876 became lecturer on Eng. literature at Johns Hopkins Univ. Such poems as 'The Marshes of Glynn,' 1881, and 'The Master' entitle him to the first place after Poe among the poets of the S., whilst the *Science of English Verse*, 1880, exhibits his mastery over prose, and his *Letters*, 1899, illustrate the charm of his personality and his Stevensonian courage. See studies by E. Mims, 1905, and A. H. Starke, 1933.

**Lankester**, Sir Edwin Ray (1847-1929), zoologist and biologist; b. London; eldest son of Dr Edwin L., coroner for Central Middx. Educ. at St Paul's School, Downing College, Cambridge, and Christ Church, Oxford. Fellow and lecturer of Exeter College, 1872; he accepted in 1874 the chair of zoology and comparative anatomy at Univ. College, London. F.R.S., 1875. In 1890 he gave up his work in London, and for the next 7 years, lectured on comparative anatomy at Oxford. He was director of the natural hist. depts in the Brit. Museum, 1898-1907. He founded the Marine Biological Association and became its president, 1892; he became vice-president of the Royal Society, 1896. From 1869 he ed. the *Quarterly Journal of Microscopical Science*. Made K.C.B. 1907, in which year he presided over the Brit. Association. His pubs. include *Comparative Longevity*, 1871, *Degeneration*, 1880, *Extinct Animals*, 1905, *Science from an Easy Chair*, 1910-12, *Diversions of a Naturalist*, 1915, and *Great and Small Things*, 1923. He ed. the well-known *Treatise on Zoology*, 1800-9.

**Lanner**, Josef (1801-43), Austrian violinist, b. Oberdöbling, near Vienna. He joined a dance band as a youth and eventually formed one of his own with which he played at balls and for which he composed numerous dances, especially 122 waltzes, which rival those of the elder and anticipate those of the younger Johann Strauss.

**Lannes**, Jean, Duke of Montebello (1769-1809), Fr. marshal, one of Napoleon's greatest generals. B. of humble parents, he was apprenticed to a dyer, but in 1792 he joined the army. The times were auspicious for the rapid rise of any youth of talent. According to Bonaparte he fought in 54 battles and 300 combats, among them being Montenotte and Millesimo (1796), Aboukir (1797), Châtillon, Montebello, and Marengo (1800), Wertingen and Austerlitz (1805), Jena (1807),

Tudela (1808), and Eckmühl (1809). The finest thing he ever did, after his defeat of the Austrians at Montebello, was his brilliant assault of Saragossa (1809). His fall at the battle of Eessing was a disaster which Napoleon was the first to appreciate. See lives by C. Thoumas, 1891, and von Montebello, 1900.

**Lannion**, riv. port in the dept of Côtes-du-Nord, France, on the Léguer, 54 m. ENE. of Brest. It has many interesting old buildings. The manufs. are linen and leather, and the tn has a harbour and fisheries. Pop. 7200.

**Lanolin(e)** consists of the purified wool-wax of sheep containing about one-fourth of water. The crude wax is taken from the wool by extraction with a volatile liquid or a soap solution, the latter being treated with acid to precipitate the wax, which is then purified by boiling with caustic soda. The purified wax, free from water, is styled in pharmacy *adeps lanae* or anhydrous L. It is a yellow greasy solid with a characteristic odour, which will form emulsions with a high percentage of water. The purified wax consists essentially of a mixture of sterols and aliphatic alcohols with their esters. Potassium, sodium, and calcium soaps may also be present. L. is used in the manuf. of salves, cosmetics, soaps, leather, and printing inks.

**Lanrezac**, Charles Louis Marie (1852-1925), Fr. general, b. Pointe-à-Pître, Guadeloupe. Entering St Cyr in 1869, he fought in the Franco-Ger. war and in Tunis. On the outbreak of the First World War he was in command of the Fifth Army, on the right of the Brit. Expeditionary Force. He was removed by Joffre, 3 Sept. 1914. In 1920 he wrote an account of the early months of the war.

**Lansbury**, George (1859-1940), Labour politician, b. Halesworth, Suffolk. He spent his childhood in Sydenham, Greenwich, Bethnal Green, and Whitechapel, attending elementary schools. As a lad he worked at many jobs, including unloading coals for a railway company. He emigrated to Australia in 1884, and worked at various kinds of heavy labour around Brisbane. Returning to England in 1885 he worked for the Liberal party and agitated for an 8-hr day at the National Liberal Conference, Manchester, 1889. Later he joined the Socialists. He was a poor law guardian from 1892, and bor. councillor from 1903. In 1910 he was elected to Parliament as Labour member for Bow and Bromley. He was mayor of Poplar, 1919-20, and, with the bulk of the bor. council, was imprisoned for 6 weeks, autumn 1921, for refusing to pay co. precepts because of the bor.'s poverty. He ed. *Daily Herald* (weekly *Herald* during the First World War), 1912-22, and *Lansbury's Labour Weekly*, 1925-7. He re-entered Parliament for Bow and Bromley, 1922, and became first commissioner of works, 1929-31, as such gaining prominence by projects designed to popularise London parks and open spaces. After the general election of 1931, he became leader of the parl. Labour party, resigning in 1935, as his strongly

pacifist views were not accepted by the majority of the party, and he was succeeded by Clement Attlee. In 1937 he visited Hitler and Mussolini in an attempt to persuade them towards peace. His integrity and idealism earned him the respect of members of all political parties, and he was especially beloved in the E. end of London, where his humanitarian work had been carried on for nearly half a cent. See his *What I saw in Russia*, 1920, *My Life*, 1928, *My England*, 1934, and *My Quest for Peace*, 1938, an account of his visit to Hitler and Mussolini. A life by his son appeared in 1934.

**Lansdown**, elevation (813 ft) in Somerset, England, just NW. of Bath (q.v.).

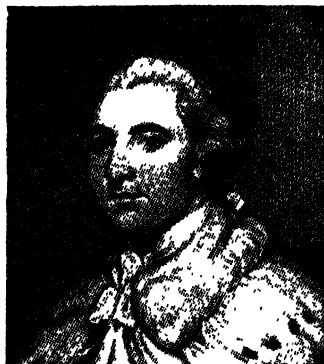
**Lansdowne**, Baron, see GRANVILLE, GEORGE.

**Lansdowne**, Henry Charles Keith Petty-Fitzmaurice, 5th Marquess of (1845-1927), Brit. statesman, eldest son of 4th marquess, educ. at Eton and Balliol College, Oxford. He joined the Liberal party and served the gov. as lord of the treasury, 1869-72, under-secretary for war, 1872-4, and under-secretary for India, 1880. Governor-General of Canada, 1883-8, then Viceroy of India until 1893. When Gladstone introduced Home Rule for Ireland he became one of the Liberal-Unionist party. From 1895 to 1905 he was once more a member of the Cabinet, first as secretary for war (until 1900), and afterwards as foreign secretary. After Salisbury's death he was Unionist leader in the House of Lords. He joined Asquith's Coalition Gov., 1915, as minister without portfolio, but resigned in 1916. On 29 Nov. 1917, the *Daily Telegraph* pub. his remarkable communication known as the L. letter (q.v.). See life by Lord Newton, 1929.

**Lansdowne**, Henry Petty-Fitzmaurice, 3rd Marquess of (1780-1863), Eng. statesman, educ. at Westminster School, Edinburgh Univ., and Trinity College, Cambridge. Having entered Parliament in 1802 he was a member of Grenville's short-lived ministry of 'All the Talents' (1806-1807). Throughout his public life he was a zealous advocate of Free Trade, the abolition of slavery, and Catholic emancipation. President of the council from 1831 to 1841, and again from 1846 to 1852, he assisted in the passage of the Reform Bill (1832), and subsequently refused the premiership and a dukedom. He succeeded to the marquessate in 1809.

**Lansdowne**, William Petty, 1st Marquess of (1737-1805), Brit. statesman, went to Christ Church, Oxford, and later joined Wolfe's regiment. In 1760 he rose to colonel, having greatly distinguished himself during the Seven Years War at Minden and Kloster-Kampen, and in the same year entered Parliament. In his principles he was closely associated with Pitt, whom he supported on the question of Wilkes's expulsion. When Pitt became Premier, Shelburne (he had succeeded to his father's earldom in 1761) accepted the secretaryship of state (1766), but resigned 2 years later, being opposed to the gov.'s Amer. policy. For a few months in 1782

he was Premier, but the coalition of Fox and North secured his speedy downfall, and he retired from political life. He was created Marquess of L. in 1784.



WILLIAM PETTY, FIRST MARQUESS OF LANSDOWNE

**Lansdowne Letter**, letter written by Lord Lansdowne to the *Daily Telegraph*, 29 Nov. 1917, arguing the necessity for a revision of the Brit. war aims, and, inferentially, advocating peace overtures to Germany. The views expressed in the letter were speedily repudiated by the Brit. Gov., which declared its unswerving adherence to its war policy as previously stated. The letter caused astonishment both in Great Britain and in the U.S.A., but was soon forgotten. See LANSDOWNE, HENRY CHARLES KEITH PETTY-FITZMAURICE, 5th MARQUESS OF.

**Lansing**, Robert (1864-1928), Amer. politician and lawyer. He was counsellor to the state dept until 1915, when he succeeded Wm J. Bryan as secretary of state. He was chosen as one of the 5 delegates to represent America at the Inter-Allied Peace Conference in Paris in 1919. He pub. *The Peace Negotiations*, 1921, and *The Big Four and Others of the Peace Conference*, 1921. His war memoirs appeared in 1935 and *The Lansing Papers*, 1914-20, in 1939-40.

**Lansing**, city, cap. of Michigan, U.S.A., on the Grand R. in agric. area 80 m. NW. of Detroit. It manufs. automobiles, buses, trucks, tools, metal, wood, and cement products, and is the seat of Michigan State Library, Michigan State Univ. (forming Michigan State Colleges) is 4 m. away at E. L. Pop. 92,100.

**Lanson**, Gustave (1857-1934), Fr. literary critic, b. Orleans; educ. at the *lycées* of Orleans and Charlemagne. He was director of the *École Normale Supérieure*, prof. of Fr. literature at the Sorbonne, and, after the death of Brunetière, the chief influence in guiding students of Fr. literature. His method of criticism was essentially one of historical and biographical research, a method which in less able

hands might tend to subordinate literature to the catalogue label. His *Histoire de la littérature française*, 1894, is unrivalled by any other work of similar range. In addition he wrote valuable studies of Nivelle de la Chaussée, Bossuet, Boileau, and Corneille; an ed. of Voltaire's *Lettres philosophiques*, 1908; critical eds. of Lamartine's *Méditations*, 1915; and a *Manuel bibliographique de la littérature française moderne* (new ed., 1921). He was vice-president of the Société d'histoire littéraire de la France and president of the Société des textes français modernes.

**Lanston, Tolbert** (1844-1913), Amer. inventor of the Monotype system of single-type composition, b. Troy, Iowa, in poor circumstances. He served in the Civil war and later in the Pensions Office at Washington. His initial patent is dated 1887, the invention being developed by J. S. Bancroft. The first machine in England was installed in London in 1898. See also TYPE-CASTING AND TYPE-SETTING MACHINES.

**Lanterloo, see** LOO.

**Lantern:** 1. In architecture, an ornamental turret erected on the roof or dome of a building to provide light (and also sometimes providing ventilation). A L. may be square, circular, or polygonal on plan; and its sides may be glazed or open. There are important medieval examples in the cathedrals of York, Ely, and Coutances; also at the church of St Ouen at Rouen. Among Renaissance examples, those on the domes of Florence Cathedral, St Peter's (Rome), and St Paul's (London) are famous.

2. Name given to a case to contain a light. It generally consists of a framework of metal with glass, horn, or mica windows, or some other transparent material. The light may be supplied by a candle, oil, etc. In engineering any L.-shaped construction is often called a L., e.g. a L. pinion. See also LAMP.

**Lantern, Magic, see** MAGIC LANTERN.

**Lantern-fly** (*Fulgoridae*), family of tropical insects of the order Hemiptera, in many of which there is a large outgrowth from the head, once believed luminous.

**Lanthanum**, symbol La, atomic number 57, atomic weight 138.9. One of the commonest of the rare-earth elements. Discovered in 1839 by Mosander by extraction from crude ceria. It is a white malleable metal which tarnishes in air, and is acted on slowly by water. Chemically it is very like cerium, and forms a basic oxide  $\text{La}_2\text{O}_3$  which dissolves in water to give a fairly 'strong' hydroxide. Forms many salts and a hydride,  $\text{LaH}_3$ .

**Lanuvium**, or Lanivium, anct city of Italy, situated about 20 m. SE. of Rome, bp. of Antoninus Pius. It stood upon a hill commanding an extensive view of the surrounding country, and had a celebrated temple of Juno. The present vil. is noted for its vineyards.

**Lanzarote**, one of the Canary Is., in the prov. of Las Palmas (q.v.). It is the most easterly of the Is., and abounds in curious volcanic phenomena. Its cap. is Puerto

de Arrecife. Area 323 sq. m.; pop. 30,000.

**Lanzi, Luigi** (1732-1810), It. archaeologist, was educ. by the Jesuits for the priesthood, but the order being suppressed, he became keeper of the galleries of Florence (1775), and henceforward devoted his life to literature and the study of antiquities. His *Storia Pittorica della Italia* (completed in 1796) has been widely trans., and, in that it was the first attempt to treat the schools of painting with historical sequence, is a landmark in art criticism. L. wrote also on the language and vases of anct Etruria.

**Lao-Ling Mountains, see** under CHANG-PAISHAN.

**Lao-Tzu**, Chinese philosopher, author of *Tao Teh King*. According to Sze-ma Ch'ien (c. 100 BC), L. T. was b. in 604 BC and was keeper of the royal library at the court of Chow in the prov. of Honan. In 517 BC he had an interview with Confucius, and in his old age, when the dynasty was growing weak, he left the royal domain and went into 'the regions beyond.' 'The Venerable Philosopher'—one meaning of his name—taught the beauty of action free from selfish motive with only its own accomplishment as its end; the world must roll on 'without striving or crying,' which is the 'way,' or 'Tao.' He taught compassion and humility and the requiring of good for evil, yet he was ever looking back from cultured to pre-cultural times for his ideals. Taoism is polytheistic and has little to do with his ethics. See trans. by P. Carus, 1898, 1913; R. Wilhelm, 1911 ff.; A. Waley, 1934, 1942; *Chinese Philosophy* (Everyman's Library); W. Bynner, 1947; also study by R. Stülke, 1912, and R. Wilhelm, *Laotse und der Taoismus*, 1925.

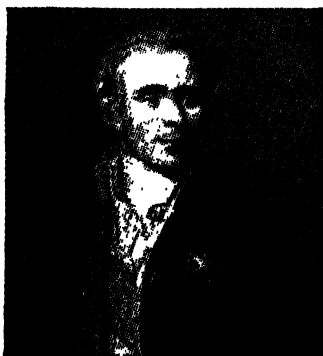
**Laoag**, tn and port of Luzon, Philippine Is., cap. of the prov. of Ilocos Norte. It is situated on the L. R. and includes the municipality of San Nicolás. There is a shipping trade in rice, Indian corn, sugar, and tobacco; cotton is extensively grown in the dist. Pop. 44,406.

**Laocoön**, priest of Apollo, whose anger he incurred by his marriage and by solemnly warning the Trojans against admitting the treacherous wooden horse within their walls. The vindictive god sent 2 huge serpents out of the sea to the altar of Poseidon at which L. with his 2 sons was officiating. They died in agony, as the monsters coiled themselves about their limbs, see VIRGIL (*Aeneid*, II, 1. 199 et seq.). The famous Laocoön group in the Vatican museum was discovered in 1506 near the Baths of Titus in Rome. Identified by Michelangelo, it was for long accepted as an original work said by Pliny (*Hist. Nat.* 36) to have been carved by 3 Rhodian sculptors, Agesander, Polydorus, and Athenodorus, and it is ascribed to the 2nd or 1st cent. BC. In September 1957, however, there were found in a cave at Sperlonga, Italy, sev. hundred fragments of an exactly similar group. The latter is now claimed by Prof. Giulio Iacopi, the Rom. archaeologist, to be the true original; all 3 names

other minerals of a similar colour though of different chemical nature.

**Lapithae**, The, mythical race inhabiting the mts of Thessaly. Pirithous, half-brother of the Centaurs (q.v.) was their ruler. Upon his marriage with Hippodamia, the Centaurs tried to carry off his bride and the other women. A fierce battle ensued, in which the L. were victorious. The story is said to symbolise the conflict between the Greeks and Persians.

**Laplace, Pierre Simon, Marquis de** (1749-1827), Fr. mathematician and astronomer, b. in humble circumstances at Beaumont-en-Auge, near Trouville, Normandy. As a youth he taught mathematics in a military school at Beaumont, and in 1767, through the influential assistance of



MARQUIS DE LAPLACE

D'Alembert, was appointed prof. of mathematics in the École Militaire, Paris. In 1796 he pub. his *Exposition du système du monde*, in which he stated the chief astronomical facts and theories, and in a note at the end expounded his famous 'nebular hypothesis' of the origin of the solar system. His *Traité de mécanique céleste*, 1799-1825, made him world-famous. Apart from his extraordinary analytic skill and far-sighted scientific sagacity, L. had a pure literary style which places his works on a level with Newton's *Principia*. His other treatises include *Théorie du mouvement*, 1784, *Théorie analytique des probabilités*, 1812-1820, and *Essai philosophique sur les probabilités*, 1814. His *Oeuvres complètes* were issued (1878-1904) in 13 vols. In his earlier years, it may be said that L.'s work was directed towards an explanation of the secular changes in the motion of the heavenly bodies, especially of the moon. It was during these years, too, that he collaborated with Lavoisier in carrying out experiments in the then new science of heat, which are still described in present-day text-books. His monumental work, *Traité de Mécanique céleste* (see above), deals with all the problems of the solar

system and is reckoned second only to Newton's *Principia*. But from the modern standpoint its most significant contribution to knowledge is the development of the idea of the potential; it is not too much to say that his equation of the potential function is the most important single equation in the whole of physics. The *Mécanique céleste* is a most difficult book to read, and this is the more curious because he had previously pub. his popular account of celestial mechanics, the *Exposition du système du monde*, which book may be described as, in effect, the *Mécanique céleste* without any mathematics and is easy to follow. L.'s brilliance as a scientist remains undimmed with the years. His work on surface tension and on the velocity of sound, as well as his more important studies on attractions and probability, are still important, and in his own lifetime had a profound effect on the progress of knowledge. The Eng. school, hampered by the allegiance to the fluxions of Newton, and by anti-Fr. sentiment, had made no progress, but L.'s work encouraged a new outlook. This began with the collaboration of Woodhouse, at Cambridge, with Babbage, John Herschel, and Peacock, in founding a new school of analytical methods, and had remarkable results in the hands of Adams and Clerk-Maxwell. (See 'A Very Extraordinary Man,' by J. G. Porter, in the *Listener*, 23 Mar. 1949.) See also COSMOGONY. See Baron Fourier, *Éloge*, 1831; D. F. J. Arago, *Report*, 1842, trans. amongst his *Biographies* by Smyth and Grant; I. Todhunter, *Elementary Treatise on Laplace's Functions*, 1875; D. V. Widder, *The Laplace Transform*, 1942.

**Laplace's Equation**, partial differential equation in connection with the theory of attractions discovered by P. S. Laplace (q.v.). By his discovery that the attracting force in any direction of a mass upon a particle could be obtained by the direct process of differentiating a single function  $V$ , the potential, Laplace showed that for empty space this potential satisfied the equation  $\frac{\partial^2 V}{\partial x^2} + \frac{\partial^2 V}{\partial y^2} + \frac{\partial^2 V}{\partial z^2} = 0$ , and thus made an important addition to every branch of physics, and more particularly heat, electricity, and magnetism. C. F. Gauss employed it in the calculation of the magnetic potential of the earth, and Clerk-Maxwell's interpretation of harmonics with reference to poles on the sphere threw new light upon it. See SPHERICAL HARMONICS.

**Lapland**: 1. Northernmost co. of Finland. Its size (excluding water area) is 36,243 sq. m., with a pop. of 176,700. It is fast developing into a tourist centre. The cap. is Rovaniemi (pop. 14,500). Kemi (pop. 25,000) has lumber and pulp mills, and is a timber-shipping centre.

2. Name also applied to an extensive region of Fennoscandia in N. Europe, inhabited by the Lapps. It has no political existence, and covers ter. in Norway, Sweden, Finland, and Russia,

the first portion consisting of bold headlands and fjords, deep glaciers, long mt lakes, and lake-fed rivs. Russian and Finnish L. is similar to the low-lying parts of Swedish L., but the surface is more level; marshes and the barren tundras of the Arctic Ocean become more frequent, and forests of fir and spruce abound. The climate is typically arctic. Northward from the Arctic Circle (Rovaniemi) the sun in winter does not rise above the horizon for 7 or 8 weeks, and comparative darkness prevails except when the aurora borealis (q.v.) illuminates the snow-covered landscape. The cold is excessive. Summer lasts for 3 months, and

inoffensive, and are extremely susceptible to religious impressions of a sensational character. To-day they all profess Christianity. The number of Laplanders is not supposed to exceed 30,000—19,000 in Norway, 6400 in Sweden, 1600 in Finland, and the rest in Russia. From the 13th to the 17th cent. they were practically in a state of slavery under the Swedish adventurers, the Birkarians. A flourishing colony of them has been estab. in Alaska. See Sir A. de Brooke, *A Winter in Lapland*, 1827; G. von Düben, *Om Lappland och Lapparne*, 1873; E. Rao, *The White Sea Peninsula*, 1882; F. H. Butler, *Through Lapland with Skis and Reindeer*, 1919; H. Sutherland, *Lapland Journey*, 1939; H. A. Bernatzik, *Lapland*, 1940.

**La Plata**, cap. of the prov. of Buenos Aires, Argentina, 30 m. ESE. of the city and 5½ m. from the coast, with which it is connected by railway and the port Ensenada. It was founded in 1882, and has grown into a city with a pop. of 325,165. It has fine gov. buildings, theatres, a library, and a race-course; also a large museum rich in geological and archaeological collections and an astronomical observatory (founded in 1897), both of which have been taken over by the univ. of L. P. Its industries include meat packing, petroleum refining, cement, sawmills; grain, wool, and meat are exported.

**La Plata, Río de, or Plate River**, see PLATA, RÍO DE LA, or PLATE RIVER.

**Lapointe, Ernest** (1876–1941), Fr.-Canadian statesman, b. in Temiscouata co., Quebec, and educ. at Rimouski College, and at Laval Univ., Quebec. He was called to the Bar, but took up politics and then set himself to master the Eng. language, of which he knew not a word. His reputation was well estab. at the end of the First World War, especially over the conscription controversy, and he might have succeeded Laurier (d. 1919) but for the party's desire to alternate the leadership between Fr.- and Eng.-speaking persons. L. assumed leadership of Quebec Liberals and, a dominant figure in the govs. of Mackenzie King, he was minister of marine and fisheries and, later, of justice, a post he held until 1930 and again from 1935 till his death. He signed a fishery treaty with the U.S.A., the first treaty ever signed by a dominion minister endowed with plenipotentiary powers from the king. He was chief Canadian delegate to the Imperial Conference, 1929; in Sept. 1939 he spoke eloquently in favour of Canadian participation in the Second World War.

**La Porte**, city, cap. of L. P. co., Indiana, U.S.A., 46 m. E. of Chicago. There are beautiful lakes to the N. of the city, and it is a summer resort. It manufs. woollen goods, machinery, and road-building materials. Pop. 20,400.

**Lappa**, port of China, at the entrance of the Canton R., opposite Macao.

**Lapps**, see LAPLAND.

**Lapse**. A devise of real estate and a bequest of a legacy are said to L. where the devise or legatee d. in the lifetime of the



Swedish Tourist Traffic Association

#### LAPP WOMEN SHOPPING AT A LAPP FAIR

is comparatively hot; N. of Rovaniemi the Midnight Sun can be seen, and for 11 weeks never sets. L. gives little scope for husbandry, the soil being frozen a foot and more below the surface; the fisheries are important, and there are extensive copper-mines and iron deposits. The latter occur principally in Swedish L., where are some of the richest iron-mines in the world. At Kiruna and Gällivara are mts of ore said to be two-thirds pure iron. To serve the mining communities an electric railway has been constructed from Lulea on the Gulf of Bothnia to Narvik on the Norwegian coast. The Lapps mostly live by fishing, fur-trapping, and hunting. The male pop. spends much time tending the large reindeer herds which supply most of the needs of the inhab., providing them with flesh, milk, skins, etc., for the souvenir industry, and acting as a beast of burden. Of Finno-Ugrian stock, the Lapps are remarkably short in stature, with high cheekbones, wide mouths, small, elongated eyes, and snub noses. They are quiet,

testator. But by the Wills Act, 1837, no L. occurs: (a) when the donee is a child or other issue of the testator and dies leaving issue at the testator's death; and (b) when the gift is of an estate tail (see ESTATE; ENTAIL) and the tenant in tail leaves issue living at the testator's death capable of inheriting under the entail. In both (a) and (b) the property passes just as if the donee had *d.* immediately after the testator. Lapsed legacies fall into the residuary estate.

**Lapurdum**, see BAYONNE.

**Lapwing**, see PLOVER.

**L'Aquila** (Degli Abruzzi): 1. Prov. of Italy, in NW. Abruzzi e Molise (q.v.). It is in the Central Apennines (q.v.), and has many high mts in the NE. (Gran Sasso d'Italia, q.v.), centre, and S. The prov. is crossed NW.-SE. by the R. Pescara, and in the S. of the prov. is the Lake of Fucino (q.v.). Cereals, hemp, flax, and fruit are produced. The prin. lns include L'A. and Avezzano (qq.v.). Area 1942 sq. m.; pop. 368,000.

2. It. tn, cap. of the prov. of L'A. and chief tn of Abruzzi e Molise, situated on a hill on the R. Aterno, 58 m. NE. by E. of Rome (q.v.). It was founded by the Emperor Frederick II (q.v.) on the ruins of the anc. *Amiternum*, bp. of Sallust (q.v.). It was almost destroyed in an earthquake in 1703, and was damaged during the Second World War. There is a 14th-cent. archiepiscopal cathedral (restored 18th cent.), and in the 15th-cent. church of S. Bernardino is the tomb of Bernardino of Siena (q.v.). It has paper, linen, and lace manufs., and a trade in saffron. Pop. (tn) 20,573; (com.) 55,300.

**Lar**, or **Lars**, Etruscan word meaning lord, king, or hero. It was employed as a praenomen and borne by Persena (L. Persena) of Clusium, Tolumnius of Veii, and others. See C. O. Müller and W. Deecke, *Die Etrusker*, 1877.

**Lar**, dist. and tn of prov. of Fars in Persia. The dist., which was formerly called Laristan, is bounded on the S. by the Persian Gulf. It has a hot climate, and much of the region is dry and barren. Dates, opium, cotton, and tobacco are the chief products. Pop. of dist. about 125,000; of tn about 14,000.

**Lara**, state of N. Venezuela, bounded to the S. by Portuguesa and to the N. by Falcón. The Tocuyo R. traverses L. and there is a railway to the coast at Tucacas. The cap. is Barquisimeto. Coffee and other tropical crops are produced. Area 7642 sq. m.; pop. 368,169.

**Larache**, or **El Arache**, fortified seaport tn of the former Sp. zone of Morocco, Africa, overlooking the Atlantic ocean, 45 m. SSW. of Tangier. L. was once a Phœnician settlement. Pulse, beans, wheat, wool, hides, and wax are exported. L. is a railway terminus and has an airline to Seville. Pop. 41,920.

**La Ramée**, Louise de, see OUIDA.

**Laramie**: 1. Co. seat of Albany co., Wyoming, U.S.A., 40 m. NW. of Cheyenne on the Union Pacific Railway, the centre of a stock-raising, lumbering, and mining dist. It has an altitude of 7145 ft, is

enclosed by mts, and is in the midst of picturesque scenery. It contains Wyoming Univ., and has manufs. of cement, bricks, tiles, and timber; there are also railroad repair shops. Pop. 15,580.

2. Riv. in Colorado, flowing NE. through SE. Wyoming; it is 216 m. long, and drains part of L. co. It is used for irrigation.

**Laramie Strata**, appearing in the intermediary age between the Cretaceous and Tertiary, containing seams of lignite. They are well developed in Utah and Wyoming, U.S.A.

**Larat Island**, see under MOLUCCAS or SPICE ISLANDS.

**Larbaud**, Valéry (1881- ), Fr. writer, b. Vichy, educ. at his native tn and at the Sorbonne. His wealth enabled him to travel widely. He has trans. Coleridge, Samuel Butler, and James Joyce from English and Ramon Gomez de la Serna from Spanish. His first considerable original production was *Poésies de A. O. Barnabooth* (1908). 'Barnabooth' being a reputed S. Amer. millionaire in search of happiness. The poems are written in free verse, showing the influence of Walt Whitman. Some years later he pub. the prose work, *A. O. Barnabooth, son journal intime*, 1913. He has also written a short novel, *Fermina Marquez*, 1906, sev. vols. of short stories, and a collection of critical essays. See G. J. Aubry, *Valéry Larbaud*, 1949.

**Larbert**, par. and vil. of Stirlingshire, Scotland, on the Carron, 2½ m. NW. of Falkirk. Manuf. of light castings is the main industry. Pop. 15,787.

**Larboard**, see STARBOARD.

**Larceny**, or **Theft**, fraudulently taking and carrying away, without a claim of right made in good faith, the property of another, without his consent, with the intention of depriving him permanently of it. L. is either simple or compound, the latter being theft accompanied by circumstances of aggravation, e.g. robbery with violence, theft by a public servant. L. is distinguishable from: (a) false pretences, in that possession only is obtained, while in the latter crime the owner intentionally parts with his right of property as well, although induced so to do by some false representation; and (b) embezzlement, in that L. by a clerk or servant connotes the stealing of property which at the time is in the actual possession of the master, while in embezzlement the property is intercepted. Only personal goods can be the subject of L. There were formerly a great number of things, like trees, plants, deeds, fixtures, coal from a mine, chattels real (q.v.), choses in action (q.v.), wills, animals *ferae naturae* (i.e. wild or unreclaimed), and dogs, or other domesticated animals not ordinarily used for food, which at common law could not be the subjects of L. The theft of most of these things is now, however, punishable as for simple L., while the theft of coal or other ore from mines, wills, records, and deeds is met with much heavier punishment than L., that of wills being punishable to the extent of



a life term of imprisonment. If the taking is bona fide under some colour of right, it might ground a civil action in trespass (q.v.), but would not be larcenous. If the goods are taken by a trick, the owner not intending to part with the ownership of the goods, it is L., e.g. A man gets half a dozen pairs of boots sent to him ostensibly for the purpose of buying one selected pair and then converts all of them to his own use. Welshing is a common form of L. by trick. To constitute L. there must be a complete physical taking (called asportation). This, however, is in law interpreted to mean bodily displaced as distinguished from being merely handled, or if attached or connected in some way (e.g. watch and chain) completely severed. It is not essential that the taking be for the sake of gain, e.g. to take a man's motor-car and run it into a deep riv. merely to spite him is L. if done with intent permanently to deprive the owner of his property. L. by finding is the offence of appropriating goods, the true owner of which may be found by inquiry. If, at the time of appropriation, the finder really believes that the owner cannot be found, it is not L. (Baron Parke in *R. v. Thurborn*, Warburton's *Leading Cases*, 157). See also BURGLARY and THEFT.

**Larch**, common name given to species of *Larix*, a genus of coniferous plants found in N. parts of Europe, Asia, and America. The plants are hardy trees,

which it yields. *L. pendula*, the black L., is common in America. See FORESTRY, TREE.

**Larcom, Lucy** (1826-93), Amer. poetess, b. Beverly Farm, Massachusetts. From 1866 to 1874 she ed. *Our Young Folks*. Her poems include *Roadside Poems*, 1876, and *Hillside and Seaside in Poetry*, 1877. See her autobiography, *A New England Girlhood*, 1889.

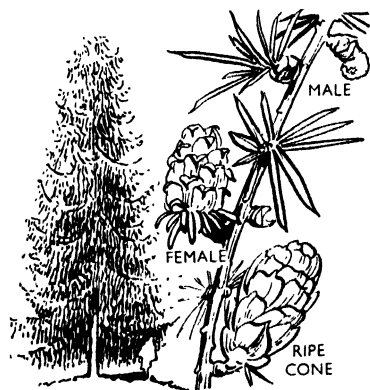
**Lard**, fat of the hog melted down and strained, the best quality being prepared from the 'leaf' or fat of the bowel and kidneys. L. should contain about 60 per cent of olein and 40 per cent of palmitin and stearin. Adulteration is frequently resorted to in the manuf. of this commodity, the stearin of beef or mutton being used. The best quality of L. is used for making oleomargarine, whilst the inferior sort is used for making candles. An artificial L. is made by the action of hydrogen upon cotton-seed oil in the presence of nickel shavings, which act as a catalyst (q.v.); though wholesome, it lacks the vitamins of the animal product.

**Lardner, Dionysius** (1793-1859), scientific writer, b. Dublin. Entered Trinity College, Dublin, and took orders, but preferred to write contributions to the *Edinburgh Review* and various encyclopaedias. In 1827 he became prof. of natural philosophy and astronomy in the Univ. of London (afterwards Univ. College), and in 1829 began his great work, *The Cabinet Cyclopaedia*, which was finished in 133 vols. 20 years later.

**Lardner, Ringold Wilmer** (1885-1933), Amer. journalist and short-story writer, b. Niles, Michigan. He studied engineering at Armour Institute, Chicago, but turned to journalism. From 1910 he ed. *Sporting News* at St Louis, and from 1913 to 1916 was a columnist on the *Chicago Tribune*. He became famous as a writer on sport, especially baseball, and for his short stories, written in the semi-literate argot of the baseball fan, and giving a satirical picture of different aspects of Amer. life. His best-known books are *Bib Ballads*, 1915, *You Know Me*, 1916, *Gullible's Travels*, 1917, *Treat 'Em Rough*, 1918, *The Big Town*, 1921, *What of It?*, 1925, *The Love Nest*, 1926, and *Lose with a Smile*, 1933. *The Story of a Wonder Man*, 1927, is a fanciful autobiography. See M. Geismar, *Writers in Crisis*, 1942.

**Lareau, Edmond** (1848-90), Canadian politician of Fr. extraction. Called to the Bar in 1870, and was appointed 6 years later prof. of law in McGill Univ. In 1886 he was elected to the prov. legislature. He wrote *History of Canadian Law*, 1888, as well as *Mélanges historiques et littéraires*, 1877.

**Laredo**: 1. City of Texas, U.S.A., and the co. seat of Webb co., 150 m. SSW. of San Antonio. It is a garrison tn, and a port of entry on the Rio Grande. It is a centre for trade between Mexico and U.S.A., and its industries include anti-mony smelting and car works, cattle-raising, and fruit-growing; it is especially famous for early grapes and Bermuda



much resembling species of *Cedrus* in habit, but they are not evergreen, and the cones ripen in one year. The wood is hard and tough, the leaves are bright green in colour and linear in shape, and the flowers are monococious. *L. decidua*, the common L., grows to a height of 100 ft. and is valued for its wood, its bark used in tanning, and for the turpentine

onions. In 1936 was opened the new highway (770 m.) between Mexico city and L., on the Amer. border. Pop. 52,000.

2. Sp. port in the prov. of Santander, on the Bay of Biscay. It is a popular resort with a good beach and a pine forest. There are fisheries, and sailing tackle is made. Pop. 6800.

**Larentalia**, **Larentinalla**, *see* ACCALIA.

**Lares**, Rom. tutelary deities, originally gods of cultivated fields, worshipped by each household. From early times a distinction existed between public and private L., the latter being worshipped by families alone as representing the spirits of departed ancestors. The public L. belonged to the state religion, and their influence included the entire neighbourhood in which they were situated. They had a special ann. festival with public games. In the later rep. they are confounded with the Penates, but in earlier times there was a marked distinction between the two. The name seems identical with the Etruscan *lar*, king, lord. *See* G. Wissowa, *Religion und Kultus der Römer*, 1902.

**Large Post**, *see* PAPER.

**Largentière**, Fr. tn, cap. of an arron., in the dept of Ardèche. It has an auct church and castle, and has a silk industry. Pop. 1800.

**Largo**, par. of Fife, Scotland, comprising 3 vils. on L. Bay—Upper L., Lower L., and Lundin Links. All are summer resorts; Lower L. is a fishing vil. with a small harbour, and Lundin Links and Upper L. have summer holiday amenities. Alexander Selkirk ('Robinson Crusoe') was b. in Lower L. Pop. of vils. 2500.

**Largo** and **Larghetto**, It. terms in music used as directions of tempo. **Largo** is generally understood to denote a broad style as well as a slow pace. **Larghetto** is the dimin. of **largo**, meaning less slow than the latter. Handel's 'Largo' is the aria 'Ombra mai fu' from the opera *Scree*, but he wrote innumerable airs in slow 3-4 time, very similar to this, with the tempo direction **largo**.

**Largo**, burgh and popular resort on the Firth of Clyde in N. Ayrshire, Scotland, 12 m. SSW. of Greenock, a tourist centre with good sailing. Pop. 9000.

**Lari**, It. mkt tn, in Fuscany (q.v.), 13 m. SE. of Pisa (q.v.). Pop. 8800.

**Laricio**, *see* PINE.

**Laridae**, *see* GULL.

**Larino**, It. tn, in Abruzzi e Molise (q.v.), on the Biferno, 21 m. NE. of Campobasso (q.v.). It suffered destruction by an earthquake in 1300. There is a cathedral. Pop. 1800.

**La Rioja**: 1. Andine prov. of Argentina, situated between Córdoba, San Juan, and Catamarca. In the NW. is the Sierra Famatina (20,000 ft.), with its popular valley resort of Chilcito. Gold, copper, silver, and iron are found, and the soil is fertile in vines, maize, cotton, etc. Area 35,691 sq. m.; pop. (1955 estimate) 122,959.

2. Cap. of above prov., at the E. side of the Sierra Velasco at an altitude of 1620 ft. Pop. 23,000.

**Larissa**, chief tn of Thessaly in Greece. It is now the cap. of the dept of L. and stands on the r. b. of the R. Peneus, 35 m. NW. of Volo. L. was under Turkish authority until 1881, when it was ceded to the Greeks. There are still evidences of its Turkish occupation in the minarets, empty mosques, and Muslim burying grounds. L. lies not far from the Homeric Argissa, and was a name applied to other cities; it signified a fort. It has suffered much from earthquakes. It is low-lying and subject to floods and malaria. Pop. (dept.) 208,000; (tn) 41,000.

**Laristan**, *see* LAR.

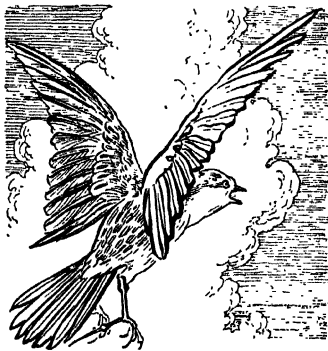
**Larius Lacus**, *see* COMO, LAKE.

**La Rive**, Auguste de (1801-73), Swiss chemist, b. Geneva. He became prof. of natural philosophy in his native city in 1823, and made a special study of electricity. His chief work is *Traité de l'électricité théorique et appliquée* (3 vols.), 1854-8.

**Larivey**, Pierre (c. 1540-1619), Fr. dramatist, descended from the Giunta, the famous Florentine and Venetian printers. He became canon of the church of St Étienne. His comedies were rather adaptations from It. plays than works of creative art. His prin. work, *Comédies facétieuses*, appeared in 1579. *See* M. Amato, *La Comédie italienne dans le théâtre de Larivey*, 1809.

**Larix**, *see* LARCH.

**Lark**, popular name given to the species of *Alaudidae*, a family of passerine birds inhabiting the Indian, Palaearctic, and Ethiopian regions, *Otocorys* being the only



Amer. genus and *Mirafra* the only Australian one. *Alauda arvensis*, the familiar Brit. skylark, nests in a hollow in the ground, usually among grass or cereals. Its rapid, pleasing trill is generally uttered while the bird is soaring, and occasionally it emits a plaintive call. *A. arborea*, the woodlark, *A. cristata*, the crested lark, and *A. alpestris*, the shore lark, belong to the same family.

**Larkhall**, tn of Lanarkshire, Scotland

3 m. SE. of Hamilton, with industrial estate with woollen, tartan, and aluminium factories, motor-car and motor-mower depots, bleach works, and cardboard box manufs. L. is a tomato-growing dist.; it forms part of the par. of Dalsert (q.v.); pop. (of tn) 15,000; pop. of dist. (including vills. of Netherburn, Ashgill, Rosebank, Shawburn, and Swinhill) 19,000.

**Larkspur**, see DELPHINIUM.

**Larmor**, Sir Joseph (1857-1942), physicist, b. co. Antrim, N. Ireland, and educ. at the Royal Belfast Academical Institution, Queen's College, Belfast (graduating with the highest honours), and St John's College, Cambridge, where he was senior wrangler. He was prof. of natural philosophy, Queen's College, Galway, and later at St John's, Cambridge. His *Aether and Matter*, pub. in 1900, on electromagnetic theory, is a systematic working out of the idea, then gaining favour, that matter is essentially an electrical structure. Clerk-Maxwell's theory, which postulates electricity as a continuous fluid, becomes, with L., an electron theory, postulating electricity as atomic in character like matter. L. proved that, if matter be electrically constituted, any moving object must minutely contract in the direction of its line of motion and this phenomenon was the foundation of Einstein's theory of relativity (formulated in 1905). Among other contributions of L. were his formula for radiation of energy by an accelerated electron, and his theory of the precession of electron orbits in a magnetic field. L. also wrote notable papers on hydrodynamics and waves. He was elected to Parliament for Cambridge Univ. as a Unionist from 1911 to 1922. Fellow of the Royal Society, 1892; secretary, 1901-1912; Royal medal, 1915; Copley medal, 1921. He was knighted in 1901. See also his vols. of scientific memoirs, 1927-1929.

**Larnaca**, or **Larnaka**, the anct *Citium*, port on the S. coast of Cyprus. An open roadstead affords good anchorage and there is a jetty. L. is now the third port of Cyprus, but was formerly the port of Nicosia (q.v.), the place of residence of all foreign consuls and, in the 18th and 19th cents., the chief commercial centre of the is. It decayed with the rise of Famagusta (q.v.). A salt lake and the very holy Muslim shrine of Hala Sultan are outside the tn. Estimated pop. (1954) 16,600, of whom about 20 per cent are Turks.

**Larne**, bor. and seaport of co. Antrim, N. Ireland, on Lough L., 18 m. N. of Belfast. The port, which is the terminus for steamers from Stranraer, has become one of the chief passenger ports of Ireland. There are linen manufs. and bauxite refining is carried on; L. has also an import-export trade. The tn. possesses a marine zoological station. The Curran, running S. from L., is a raised gravel beach on which many Neolithic flint implements have been found. Pop. 12,000.

**La Rochefoucauld, François, Duc de** (1613-80), Fr. moralist, the most accomplished of the maxim and memoir writers

of France, b. Paris. He bore the title of Prince de Marsillac. He joined the army at an early age, and soon began to make a figure in public life, becoming engaged in intrigues against Richelieu and in the plots of the Fronde. He was severely wounded at the siege of Paris and again at the fight at the Port Saint-Antoine in 1652. He then retired to the country for a while, but returned to court before the death of Mazarin and became a prominent leader of the literary *salon* of Mme de Sablé. In 1665 he pub. his famous *Maximes* anonymously and under the title of *Reflexions, ou sentences et maximes morales*. They passed through 5 eds. in the author's lifetime, and are as remarkable for their literary excellence as for their acuteness of thought, their bitter realism in the dissection of basic human motives making him the forerunner of modern psycho-analysis. His *Memoires* were pub. in 1662, and are among the best of a time rich in writings of this kind. His *Lettres* are also of great historic and social interest. La R.'s *Oeuvres complètes*, ed. by Gilbert and Gourdaul, appeared in 1868-84. There are numerous eds. of the *Maximes*, the finest being the *Édition des bibliophiles*, 1870 (Eng. version by G. H. Powell, 1903). See J. Bourdeau, *La Rochefoucauld*, 1895, and R. Grandsaignes d'Hauterive, *Le pessimisme de La Rochefoucauld*, 1914.

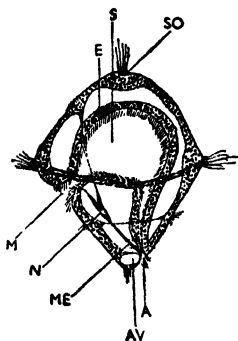
**La Rochelle**, see ROCHELLE, LA.

**Larousse, Pierre Athanasé** (1817-75), Fr. grammarian and lexicographer, b. Toucy, Yonne. His greatest work was the *Grand Dictionnaire universel du XIX<sup>e</sup> siècle* (15 vols.), 1866-76, supplements 1877 and 1887. From 1898 to 1907 appeared the *Nouveau Larousse illustré*, and from 1928 to 1934, the *Larousse du XX<sup>e</sup> siècle*. The publishing house which he founded has continued to issue dictionaries and encyclopaedias.

**Larrey, Dominique Jean, Baron** (1766-1842), Fr. army surgeon, b. Beaudéan, near Bagnères-de-Bigorre. He studied medicine at Paris, spent a short time in the navy, then continued his studies at the Collège de Chirurgie, Paris. In 1792 he joined the army and spent the rest of his active life as a military surgeon. By sheer force of character and ability he rose to become surgeon-in-chief of the Grande Armée and the greatest military surgeon in hist. He was present at all Napoleon's great battles and one of the few who stood by him on his abdication and waited for him on his return in 1815. L. took part in 60 battles and 400 engagements, being wounded 3 times. At Waterloo he was captured and sentenced to death but reprieved on the intervention of Blücher. L. was one of the first to amputate at the hip-joint (1812), to describe the therapeutic effect of maggots on wounds, gave the first description of 'trench foot', invented the 'flying ambulance' to pick up the wounded as soon as possible, thus originating first aid to the wounded; he also devised many new operations. He was made a baron in 1809. His surgical experiences with

Napoleon are recorded in his *Relation Historique et Chirurgicale de l'Expédition de l'Armée d'Orient*, 1809, *Mémoires de Chirurgie Militaires* (4 vols.), 1812-17, and *Clinique Chirurgicale*, 1829. See P. Triaire, *Napoléon et Larrey*, 1902, and life by P. Triaire, 1902.

**Larsen, Karl** (1860-1931), Dan. prof., poet, and novelist; b. Rendsborg. He studied law and political science at Copenhagen and Berlin. He was editor of *Juleoser*, 1900-15, *Turistridentide*, 1914-1921, and president of the Dan. Authors' Society, 1902-8. His poems, dealing with tn life, are highly esteemed; his realistic and psychological novels include *Cirkler*, 1893, *Doktor Iz*, 1896, and *Kresjan Vesterbro*, 1897.

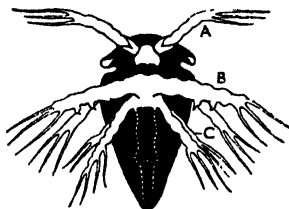


▲ TROCHOSPHERE LARVA (AFTER SHEARER)

M, mouth; A, anus; S, stomach; N, larval kidney; SO, apical sense organ; E, eye-spot; ME, beginning of mesoderm; AV, anal vesicle.

possess a head, legs, and prolegs and are popularly known as caterpillars; the larvae of Coleoptera, which have heads and may or may not have legs, are called grubs; and those of Diptera, which are legless and frequently without a head, are called maggots. Occasionally larvae are able to reproduce themselves, a phenomenon known as *neoteny* or *paedogenesis*; the best known example is the Mexican axolotl.

**Larvacea**, or **Appendicularia** (Lat. *appendix*, from *appendere*, to hang from), family of Ascidians belonging to the phylum Tunicata, including sev. genera, notably the Appendicularia, Oikopleura, Fritillaria, and Kowalevskia. They have an oar-shaped tail which contains a per-



THE NAUPLIUS LARVA OF A CRUSTACEA

A, first pair of appendages (unbranched); B, C, second and third pair of appendages; these are biramous swimming organs.

**Larsen, Kay** (1879- ), Dan. author; secretary of the council of Dan. Authors' Society, 1916-19. He writes on Dan. voyages and colonisation, and has made many 'study voyages' under the auspices of the Ministry of Marine. His works include *Glimt*, 1904, *De Danskostindiske Kolonier Historie*, 1907-8, *De Danske i Guinea*, 1918, *Kroniker fra Dansk Guinea*, 1924, and *Dansk Vestindien, 1666-1917*, 1928.

**Larva** (Lat., 'a ghost,' 'a mask'), name applied, first by Linnaeus, to the young form of any animal which has left the egg and which at that stage does not resemble the parent. It is given more particularly to insects, but refers also to tadpoles of frogs, nauplii, and zoeae of crustaceans, the young of echinoderms, the ammocoetes of the lamprey, the trochosphere of annelids, etc. The larvae of Orthoptera and Hemiptera bear a strong resemblance to the imago, or perfect insect, except in the absence of wings, and the metamorphosis is slight; such forms are best described as *nymphs*. Lepidoptera in the larval form

sistent notochord, and they have 2 gill-apertures. See ASCIDIACEA.

**Larvik**, seaport in the prov. of Vestfold, Norway, standing on a fjord to the SW. of Oslo. Its industries are shipping, whaling, and the manu. and export of pulp. Pop. 10,000.

**Laryngismus stridulus**, spasmodic affection of the larynx that occurs in young children. Characterised by a sudden arrest of respiration, the child becomes blue in the face owing to imminent asphyxiation, and breathing is resumed by prolonged crowing inspirations.

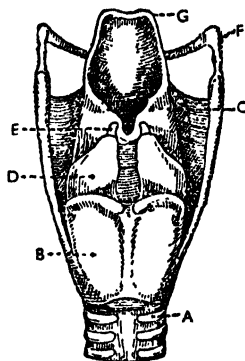
**Laryngitis**, see under LARYNX; in horses, see under HORSE (DISEASES).

**Laryngoscope**, instrument by which the condition of the larynx may be observed. It consists of a small mirror attached to a long handle at an angle of about 120°. The instrument is first warmed to prevent obscuration by the condensation of moisture, and then introduced into the throat with its back against the soft palate and uvula. At the same time a strong light is directed against the mirror from a lamp

placed on the shoulder or forehead of the observer, or from a small electric light bulb in the instrument itself, so that the light is reflected towards the larynx and back again to the mirror. Manuel Garcia, a teacher of singing, invented the first L. in 1855 and it was adapted to medical purposes by Dr Czermak of Pest.

**Larynx**, organ of voice, situated in the upper and front part of the neck. It consists of a framework or box of cartilages, with their ligaments and muscles, and is in the direct course of the current of air from lungs to mouth and vice versa. It opens above into the cavity of the pharynx at the base of the tongue and connects that cavity with the trachea or windpipe. The cartilages are movable with regard to each other, and this motion, together with differences in the tension of the elastic ligaments, causes those modifications in the resistance to the air current which give rise to the phenomena of voice. The cartilages comprising the framework of the L. are the thyroid, the cricoid, the epiglottis, the two arytenoids, the two cornicula laryngis, and the two cuneiform cartilages. The thyroid is the largest, and consists of two lateral pieces united in front to form a ridge, causing the projection known as 'Adam's apple.' Each of the lateral plates has projecting pieces at its upper and lower corners. The cricoid is a ring situated below the thyroid to which it is connected in front by thick fibrous tissue, while it is joined to the trachea below by fibrous membrane. The arytenoids are two smaller cartilages of great mobility resting upon articular surfaces in the posterior part of the cricoid, and bound to it by fine elastic ligaments. The epiglottis is a thin cartilage which serves as a valve or covering for the laryngeal cavity; during respiration it is raised so as to admit of the passage of air, but the action of swallowing brings it down so as to enable the food to pass through the gullet behind. The most important ligaments are those known as the vocal cords. The true vocal cords, or inferior thyro-arytenoid ligaments, consist of fine elastic fibres joined behind to the base of the arytenoid cartilages and in front to the middle of the angle between the wings of the thyroid cartilage. They divide the cavity of the L. into an upper and lower part which communicate with each other by the glottis, a chink or aperture between the vocal cords. The size of the glottis is an important factor in voice production. In the adult male it measures about 23 mm. from front to back, and from 6 to 12 mm. transversely. In females and males before puberty the length of the aperture is about 17 mm. and its width about 4 mm. The muscles of the L. may be divided into two groups: the extrinsic muscles, which move the L. as a whole, and the intrinsic muscles, which move the cartilage with respect to one another. It is by certain of these latter muscles that the tension of the vocal cords is regulated and the size and shape of the glottis altered in the production of different sounds. The voice mechanism

therefore consists of the modifying processes in the course of the blast of air from the lungs. The pressure of the air passing upwards through the trachea distends the margins of the elastic membranes constituting the vocal cords; the aperture is therefore opened momentarily while the air passes through, and thus a series of vibrations is produced. The pitch of the sound is determined by the number of vibrations in a second, while the intensity is determined by the amplitude of those vibrations. Inflammation of the L. is known as laryngitis. It may be caused by excessive use of the voice, irritating vapours or dust, chill, or by microbic infection. The symptoms are pain and difficulty in phonation, and swelling of



THE LARYNX (SEEN FROM BEHIND)

A, trachea; B, cricoid cartilage; C, thyroid cartilage; D, arytenoid cartilage; E, Santorini's cartilage; F, hyoid bone; G, epiglottis.

parts of the L. Laryngitis is always worthy of attention, as excessive inflammation causes great difficulty in respiration, while a succession of attacks is apt to lead to a chronic form in which the voice is affected more or less permanently. Two of the most serious causes of laryngitis are tuberculosis (q.v.) and diphtheria (q.v.). The L. may also be the site of various tumours, including cancer; hoarseness is an important symptom and should not be neglected if it persists for more than a few weeks. In severe infections the inflammation may completely obstruct respiration, in which case tracheotomy (q.v.) is performed. Laryngeal obstruction may also occur as a result of cancerous growth. See CROUP; HOARSENESS; LARYNGISMUS STRIDULUS; LARYNGOSCOPE.

Larzac Breed, see SHEEP.

La Salette, see SALETTE-FALLAVALUX, LA. La Salle, St Jean Baptiste de (1651-1719), Fr. priest, canon of Rheims, and founder of the Brothers of the Christian Schools. In 1683 he resigned his canonry,

and, with 12 others, took a vow to devote himself for life to the teaching of the poor, being in fact the forerunner of modern primary education. The H.Q. of the institution since 1705 has been at Saint-Yon (Rouen). La S. was canonised by Leo XIII (1900). See life by Ravetot, Paris, 1888, and W. J. Battersby, *De La Salle, Saint and Pioneer in Education*, 1948. La S.'s feast is on 15th May.

**La Salle, René Robert Cavalier, Sieur de** (1640-87), one of the greatest of the explorers and adventurers who opened up paths in the trackless Amer. wilderness, was b. Rouen, France. At the age of 23 he went to Montreal, where he secured a grant of land on the St Lawrence R. In 1670 he began the first of his explorations through the country in the vicinity of Lakes Erie and Ontario. He then went further S. and was at one time supposed to have discovered and explored the course of the Ohio R., but doubt has been cast on this. A close friend of Frontenac, governor of Canada, he made sev. trips back to France in the former's interest. His last trip brought for himself the grant of a monopoly of the trade in the Mississippi valley. La S. thereupon worked his way partly overland and partly by portage on some of the lakes and explored the Mississippi down to its mouth. He took possession of this vast area in the name of his sovereign, King Louis, and named it Louisiana in his honour. He attempted to consolidate for the king both the ter. of Louisiana and that other ter. vaguely known as Illinois, and was the first to build a post on the site of what is now the great city of Chicago. Frontenac being succeeded by a new governor who was not friendly to La S., the latter once more went to Paris, and secured from the king the title of governor of Louisiana and Illinois. He set forth with an expedition which was a failure from the start. The commander of the fleet refused to obey his orders. La S. lost his way to the Mississippi, landing instead in Texas. With a miserable remnant of his expedition he sought to find his way back to Canada, but was treacherously assassinated by his own men on 20 Mar. See L. V. Jacks, *La Salle*, 1931.

**Lascar** (Hindu *laskar*, army), name originally used by the Portuguese for an inferior class of men in military service; it is now generally applied to Indian sailors serving on Brit. ships. They are generally Muslims.

**Lascaris, Andreas Johannes** (c. 1445-1535), surnamed Rhynadenus, Gk scholar of noble birth. He was a fugitive to the court of Italy in 1454, and was patronised by Lorenzo de' Medici. Later he went to Paris, where he taught Greek, and in 1508 Leo X placed him at the head of a Gk college in Rome. He is remembered as editor of *The Greek Anthology*, and for his commentaries on Sophocles, etc. See A. F. Villemain, *Lascaris*, 1825.

**Lascaris, Constantin (Láskaris, Konstantinos)** (c. 1434-1501), Byzantine humanist. In 1463, at the conquest of Constantinople, he became a prisoner of

the Turks, but succeeded in escaping to Rhodes, then went to Crete and later to Italy. In Milan he became tutor in Greek to Princess Ippolita Storza, for whom he compiled the *Grammatica Graeca, sive compendium octo orationis partium*, Milan, 1476, the first book printed in Greek; it was many times revised and reprinted until 1800. In 1466 L. went to Messina, where he taught Greek for 35 years. See H. Rabe, 'Konstantinos Láskaris,' in *Zentralblatt für Bibliothekswesen*, 1928.

**Las Casas, Bartolomé de** (1474-1566), Sp. missionary, b. Seville, noted for his zeal on behalf of the oppressed Indians. Studied at the univ. of Salamanca, and in 1502 went to Hispaniola, where he became a planter and preached the gospel to the natives. In 1516 he returned to Spain to lay before the king the cause of enslaved Indians; but his zeal and plain speaking stirred up powerful enemies, and his efforts were unavailing. Notwithstanding he repeatedly crossed the ocean to plead their cause, and addressed sev. letters and treatises on the subject to Charles V. In 1544 he accepted the bishopric of Chiapa, Mexico. Three years later he returned to Spain and passed the remainder of his life in the Dominican college at Valladolid. His works include an unfinished *History of the Indies*, an important source of information on Sp. discoveries and conquests. See lives by A. Helps, 1868; F. A. MacNutt, 1900; 1938; see also L. Hawke, *The Spanish Struggle for Justice on the Conquest of America*, 1949.

**Las Casas, Ciudad de**, see SAN CRISTOBAL.  
**Las Cases, Emmanuel Augustine Dieudonné Marin Joseph** (1766-1842), Fr. officer and historian, b. near Revel, Haute-Garonne, the companion of Napoleon at St Helena. He served in Condé's army in 1792, and then spent some time in England, and fought for the royal cause at Quiberon (1795). He returned to France at Napoleon's accession, and worked at his famous *Atlas historique*, 1802, pub. under the pseudonym Lesage. After Waterloo he shared Napoleon's exile, and pub. the ex-emperor's memoirs, *Memorial of St Helena*, 1823.

**Lascaux Cave**, near Montignac-sur-Vézère, in the Dordogne, France, in which in 1940 4 boys discovered rock paintings of the Upper Palaeolithic period, preserved under a glaze of stalactite formation. They are now the most famous examples of cave art known. Since many are painted over former works, it is possible to trace the development of style, particularly in the treatment of horns, antlers, and hooves, over a period of more than a thousand years. There is much skill in technique and great artistic quality in the later paintings, which feature bulls, bison, stags, and horses, along with symbols and signs which may be tribal marks or methods of sympathetic hunting magic. The colours were rubbed on and also blown on to the surface by a tube. See also CAVE ART and under DORDOGNE. See F. Windels, *The Lascaux Cave Paintings*, 1948; also A. H.

Brodrick, *The Caves of Lascaux*, 1948, and *Lascaux: a Commentary*, 1949.

**Lascelles**, family of Yorks, England, Earls of Harewood since 1812 when Edward L. became the first earl, having been made Baron Harewood in 1796. The chief seat is at Harewood House, near Leeds. Henry George Charles L., the 6th earl (1882-1947), succeeded, in 1929; in 1916 he inherited from his great-uncle, the Marquess of Clanricarde, an estate of £2,500,000. As Viscount L. (the title of the eldest son) he married Princess Mary

archbishop upon discovery of his secret marriage. As a refugee in England, he became a friend of Cranmer and helped compile the Prayer Book and Articles of the Church of England. L. returned to Poland in 1556 and tried hard to win it over to the Protestant faith, superintending the trans. of the Bible into Polish. He wrote *History of the Cruel Persecution of the Church of God*. See study by K. Volker in *Kirchengeschichte Polens*, 1930.

**Las Cruces**, cap. of Dona Ana co., S.



*Windels, Montignac*

#### PREHISTORIC ART IN LASCAUX CAVE, FRANCE

(q.v.), daughter of George V. He was personal A.D.C. to King George VI, lord lieutenant of the W. Riding from 1927, K.G. (1922), G.C.V.O. (1934), and grand master of the united freemasons' lodge of England (1943). George Henry Hubert, the 7th earl, was b. in 1923 and succeeded in 1947. He served in the Second World War, and was a prisoner during 1944-5, and then became A.D.C. to the Governor-General of Canada, the Earl of Athlone. He is well known for his interest in classical music and patronage of modern Eng. opera. His eldest son, Viscount L., was b. in 1950.

**Lasco**, or **Laski**, **Johannes** (1499-1560), Polish reformer, b. Task, nephew of Archbishop Laski (1456-1531). Studying abroad, he became imbued with the doctrines of Zwingli and Erasmus. Nevertheless he was made Bishop of Vespren, but soon fell into disfavour with the

New Mexico, U.S.A., on Rio Grande R., 40 m. NNW. of El Paso, Texas. It is a trade centre for a live-stock and irrigated agric. region: grain, sugar-beets, cotton, vegetables, cotton ginning. New Mexico College of Agric. and Mechanic Arts and White Sands proving grounds (rocket testing grounds) are near by. Pop. 12,325.

**La Serena**, see COQUIMBO.

**Lashio**, important tn of Burma, connected by rail with Rangoon, situated about 50 m. from the Chinese frontier. Being the terminus of the Burma Road (q.v.), it was a vital strategic centre during the Jap. invasion of Burma in the Second World War, and was captured by the Japanese on 28 April 1942. It was bombed frequently by the Amer. Air Force later in the same year. See further under BURMA, SECOND WORLD WAR, CAMPAIGNS IN.

Lashkar, name given to the new tn at Gwalior (q.v.).

Lasker, Emanuel (1868-1941), Ger. chess player, b. Berlinchen, studied at the univs. of Berlin, Göttingen, and Heidelberg. One of the greatest of all chess players, from about 1889 to 1914 his pre-eminence was unchallenged. Both in match play and in tournaments he was invincible, winning decisive victories over such players as Blackburne, Mieses, Bird, Showalter, and Janowski. He won the world championship title in 1894 and defended his title successfully in 1897.

1916 to 1920 at Harvard, and in 1936 at Dublin. Connected with the London School of Economics from 1920, he became prof. of political science at London Univ. in 1926. He became a member of the executive of the Fabian Society in 1922 and of the Labour party in 1936, being chairman of the party from 1945 to 1946. His keen insight into the problems of political thought and the progressive nature of his viewpoint placed him in the first rank of writers on his subject. His many works include *The Problem of Sovereignty*, 1917, *Authority in the Modern State*, 1919, *A*



NATIVE ROCK HOUSES AT LAS PALMAS

Canadian Pacific

He met Capablanca (q.v.) in 1920 after protracted negotiations and lost by 4 games to nil, 10 games being drawn. But his powers were undiminished, and in 1924 at the New York tournament he won first prize with the remarkable score of 16 out of 20. The next year, in Russia, he was second to Bogoljubov and again ahead of his great rival Capablanca. In 1935, again in Moscow, he was unbeaten, being third. A Jew, he left Germany owing to the Nazi persecutions and became a chess prof. in Moscow, but on the fall of his friend Krylenko (q.v.) he went to the U.S.A. Pub. works on chess, science, and philosophy, the most important being *Common Sense in Chess*, 1896, and *Manual of Chess*, 1932.

Laski, Harold Joseph (1893-1950), political scientist, b. Manchester, educ. at its grammar school and New College, Oxford. From 1914 to 1916 he lectured in hist. at McGill Univ., Montreal, from

*Grammar of Politics*, 1925, *An Introduction to Politics*, 1931, *Studies in Law and Politics*, 1932, *The State in Theory and Practice*, 1935, *The Rise of European Liberalism*, 1936, *Parliamentary Government in England*, 1938, *Reflections on the Revolution of Our Time*, 1943, *Liberty and the Modern State* (new ed.), 1948, *The Communist Manifesto: Socialist Landmark*, 1948, and *The American Democracy*, 1948. See K. Martin, *Harold Laski*, 1953.

Las Palmas: 1. Sp. prov. in the Canary Is. (q.v.), comprising the is. of Gran Canaria, Fuerteventura, and Lanzarote (qq.v.). Pop. 390,350.

2. Sp. tn on the is. of Gran Canaria (q.v.), cap. of the prov. of L. P. It is in the NE. of the is. on a narrow coastal strip, with the Atlantic on one side and steep cliffs containing rock houses on the other. There is a fine cathedral, partly 15th cent., other interesting churches, and a museum. Leather and glass are



manuf., and bananas, tomatoes, wine, and cochineal are exported. The port is very busy. Pop. 163,100.

**Lassa, see** **LEASA**.

**Lassalle, Ferdinand** (1825-64), Ger. Socialist, b. Breslau of Jewish extraction and one of the founders of the Social Democratic movement in Germany. He studied philosophy at Breslau and Berlin Univs. He was imprisoned for his revolutionary activities in 1848. In 1861 he pub. *Das System der erworbenen Rechte*, which contains his views on the structure of society. At about this time L. left the Liberals, and in 1863 founded the General Working Men's Association. In this he was helped by Marx, many of whose ideas he adopted in a modified form. As a political movement modern Ger. socialism owes much to him. He met his death in a duel. His unhappy love-story with Helene von Dönniges is the theme of Meredith's *Tragic Comedians*, 1881, where L. figures as Dr Alvan. See W. H. Dawson, *German Socialism and Lassalle*, 1888; P. Lindau (ed.), *Lassalle's Diary*, 1891; D. Footman, *The Primrose Path*, 1946; also life by G. Brandes (Eng. trans.), 1911.

**Lassen, Christian** (1800-76) Norwegian Sanskrit scholar, b. Bergen. He was the real founder of Indian studies in Germany. A pupil of Eugene Burnouf, he worked with him on Pali MSS., the result of their combined labours being pub. in an *Essay on the Pali or Sacred Language from the Peninsula beyond the Ganges*. 1826. *Ramayana*, 1829-38, and the *Hitopadesa*, 1829-31, were pub. in conjunction with Schlegel. L.'s main work, however, was *Indische Alterthumskunde* (4 vols.), 1844-1862. Other works include *Institutiones Linguae praecliticae*, 1837, and *Anthologia Sanscritica*, 1838. He also wrote on the Eugubine Tables (1833), on the Early Persian inscription of Persepolis (1836), on the Gk and Indo-Scythian dynasties of Bactriana and India (1838), etc.

**Lassigny**, tn in the dept of Oise, France, 10 m. W. of Noyon. The scene of a battle in the First World War begun by the French under Gen. Humbert on 9 Aug. 1914, and ended on the 16th, when the Germans fell back.

**Lassithion**, dept of Greece, in the E. of Crete; cap. Hagios Nicholas. Pop. 74,000.

**Lasso**, plaited rope of rawhide used by the Amer. cowboys and S. Amer. gauchos for catching wild cattle. It measures 60 to 100 ft long, and a slip-noose is made at one end to entrap the head or legs of the animal.

**Lassus, Roland de** (c. 1532-94), Flemish composer, b. Mons, also known as Orlando di Lasso, the It. form of his name. After travels in Italy and England he entered the service of the Duke of Bavaria about 1556, becoming chapel master in 1563. His works include masses, motets, *sacrae cantiones*, psalms, madrigals, It. canzoni, Fr. chansons, and Ger. songs for sev. voices. He is one of the great masters of his time, ranking next to Palestrina, Byrd, and Victoria. He d. at Munich.

**Last Supper**, meal celebrated by Jesus on the eve of His betrayal, at which He instituted the Eucharistic rite of blessing the bread and wine, with thanks to God, and commanding the perpetual repetition of the act in commemoration of Himself. (See also **EUCCHARIST**; **HOLY COMMUNION**; **MASS**). It is disputed whether the L. S. was actually a Paschal Feast, eaten in anticipation, or a solemn preparation.

**Lastra a Signa**, It. tn, in Tuscany (q.v.), 5 m. W. of Florence (q.v.). It is the centre of a straw hat industry. Pop. 11,000.

**Las Vegas**, cap. of Clark co., Nevada, U.S.A., 225 m. N.E. of Los Angeles and 25 m. W. of the Boulder Dam (q.v.). The second largest city in the state, it is a resort centre in a mining and truck-farming area; it manufs. dairy products and beverages. It is famous for its gambling resorts and divorce courts. Nellis air force base and atomic energy installations are at L. V. Pop. 24,620.

**Las Villas** (formerly Santa Clara), prov. of central Cuba, with an area of 8267 sq. m. It has an undulating surface, with rich agric. lands, and the production of sugar is the chief industry. Tobacco, coffee, and fruits are also obtained, as well as wax and honey. Cattle-raising, too, is an important industry, and the prov. is rich in minerals. The terrain rises towards the E. (Pico S. Juan, 3793 ft). Pop. 1,030,590.

**László de Lombos, Philip Alexius** (1869-1938), Hungarian painter, b. Budapest, studied at Munich and Paris. At first a genre painter, he subsequently became a portrait painter. Shortly after the outbreak of war in 1914 he became a naturalised Brit. subject. He was a popular society painter and painted the portraits of members of the Brit. royal family. See O. Rutter, *Portrait of a Painter*, 1939.

**Latacunga**, cap. of Cotopaxi prov., Ecuador, an important commercial centre, 50 m. S. of Quito. The region is noted for dairy products, kaolin and pottery, and iron ware. The buildings are mostly constructed from dark-coloured pumice stone, and L. has been the scene of many mud eruptions from the volcano Cotopaxi (q.v.), 18 m. away. At an altitude of 9055 ft, L. is a rail, road, and air centre. Pop. 18,000.

**Latakia** (Turkish *Ladikiyeh*), or **Lattakieh**, seaport tn of Syria, 75 m. from Tripoli. Tobacco, sponges, silk, and cotton form the exports. The tobacco which takes its name from the tn is much used in pipe mixtures. L. occupies the site of Laodicea and excavations have revealed remains of the earlier city. Pop. about 35,000. See **ALAOUITES**.

**Lateen-sail** (Fr. *voile latine*; Lat., 'sail', so called as the chief form of rig in the Mediterranean), triangular sail suspended to the mast by a long yard, and rigged so that the upper end is raised in the air and the lower brought down to form the tack. A vessel rigged with a L. and yard is known as a 'lateencor.' It is still the typical sail of the felucca of the Mediterranean and the dhow of the Arabian Sea.

**Late Latin Language**, see **LATIN LANGUAGE AND LITERATURE**.

**La Tène**, early Iron Age settlement at E. end of Lake Neuchâtel, Switzerland. From this classic type site the name was given to a culture which in Britain is dated c. 300–75 BC. The type of ornaments and weapons discovered at L. T. is found across Europe from Hungary to Britain; the scroll-work marks a period of Celtic art which later achieved a great brilliance in the metal-work of Britain, where cultures derived from L. T. constitute the Brit. Iron Age 'B.' See also **IRON AGE**. The classic monograph is P. Vouga, *La Tène: monographie de la station*, 1923.

**Latent Heat**, heat that is evolved or absorbed by unit mass of a substance during a change of physical state (e.g. solid  $\rightleftharpoons$  liquid, liquid  $\rightleftharpoons$  vapour). The application of heat ordinarily raises the temp. of a body, but when a change of state is taking place, it is found that heat is applied without any corresponding change in the thermometric reading until the change is complete. On the old assumption that heat was an imponderable substance introduced into the body heated, such heat was called 'latent': that is, it concealed itself from the thermometer. The principle has important applications. For instance, water on evaporating abstracts heat from surrounding bodies. Conversely heat is given out when a vapour condenses, or when a liquid solidifies. The L. H. of fusion of ice is about 80 calories per gm., that is, it takes 80 times the amount of heat required to raise the temp. of water by 1° C. to melt the same weight of ice. at 0° C. The L. H. of vaporisation of water is about 536 calories per gm. See **PHYSICAL CONSTANTS**.

**Lateran, Church of St John**, most important of the Rom. churches in so far as it (and not St Peter's, q.v.) is the Pope's cathedral as Bishop of Rome. It was originally dedicated to the Saviour, and occupies the site of a palace of the Laterani family. It has been rebuilt many times; after rebuilding under Pope Lucius II in the middle of the 12th cent. it was dedicated to St John the Baptist. Pope Sixtus V (q.v.) again completely reconstructed the church, as well as the adjoining Lateran Palace, in 1586. Four oecumenical councils (see **COUNCILS, CHURCH**) have been held here.

**Lateran Treaty**, bilateral agreement signed at the Lateran Palace, Rome, on 11 Feb. 1929, by Cardinal Gasparri on behalf of the Pope, and Mussolini as plenipotentiary for United Italy. The latter recognised the former's sovereign rights over a newly created Vatican City State, extraterritoriality of the Apostolic Palace and various other buildings in central Italy, while the Holy See acquiesced in the occupation by the House of Savoy of the rest of the former papal states. A concordat regulating relations between Church and State in United Italy was organically incorporated in the treaty. A financial convention, by which repara-

tion was made for losses since 1870, was also signed. In virtue of the L. T., the Holy See issues a currency legal in Italy, has its own postal system and radio broadcasting station, and enjoys the right to direct communication with other states, even in time of war, while cardinals and officials of the Rom. court enjoy civil immunities in different degrees.

**Laterite** (Lat. *later*, a brick), superficial deposit of red or brown clay, produced on the surface of rocks by their decomposition—common in tropical regions such as India, Arabia, and the Sahara. L. is usually soft and friable, and rich in iron, though hard masses occasionally occur. The depth of the beds varies up to 30 or 40 ft.



W. F. Mansell

CHURCH OF ST JOHN LATERAN

**Latex**, see **RUBBER**.

**Latham, Sir John Grieg** (1877–). Australian lawyer and statesman. b. Ascot Vale, Victoria, called to the Bar in 1904. L. entered politics as member of the House of Representatives for Kooyong in 1922. He was attorney-general, 1925–1929, leader of the opposition, 1929–31, and held various offices in the gov. as well as being Deputy Prime Minister in 1932–1934. He was Australian delegate to the League of Nations Assembly, 1926 and 1932, and to the disarmament and reparations conferences in 1932. He was leader of the Australian mission to the East, 1934, and first Australian minister to Japan, 1940–1. He retired from politics (1934) to become chief justice of the High Court of Australia in 1935, remaining on the bench until 1952. His pubs. include *Australia and the British Commonwealth*, 1929, *Some Recent International Problems*, 1935, and *Interpretation of the Constitution*, 1952.

**Lathe** (etymology uncertain, possibly a modified form of *lath*, or may be derived

from Dan, *lad*, a framework, as in *savelad*, a saw bench; *vævelad*, loom, etc.), mechanical appliance for holding and rotating any material to be worked upon by a tool, for the purpose of cutting, polishing, etc. In the anct 'bow and cord' and 'pole' L.s the movement was alternately forward and backward; the wheel-driven L. was not used until the 14th cent. The essential principle of all modern L.s is that of two point centres in which the work rotates, and a rest to support the tool operating on its surface. If the work revolves between fixed centres the L. is termed a 'dead-centre' one, but very few are of this class. It consists usually of a bed carrying a tail-stock and headstock, by which the work is supported and driven. The tool is held and moved by a tool-rest, which is mounted on the saddle.

In the *capstan* L. the tools required for various operations are held in a holder which resembles the old-fashioned capstan, the tools taking the position of the capstan handles. By revolving the capstan the various tools can be brought into position in the proper sequence. The *turret* L. is a capstan L. in which the capstan head is automatically operated by power-turning of the tools in correct sequence for the job in hand. The work usually done by a L. includes turning, screw-cutting, facing, and boring. L.s may be operated by treadle, belting from a lineshaft, or by electric motor, the motive being transmitted by belt cones, with or without back gears, chains, or gear wheels.

See P. N. Hasluck, *Lathe Work*, 1927; E. J. Westbury, *Automatic Lathes and Screw Machines*, 1940; E. Molloy (ed.), *Lathe-work*, 1941.

Lathom, see ORMSKIRK.

**Laths** (It. *latta*; Fr. *latte*), thin strips of wood employed in building, forming a foundation for plaster, or tiles, slates, and similar covering for roofs. Lattice-work or bars of Venetian blinds and shutters are made from L.

**Lathyrus**, genus of climbing herbs, family Leguminosae, about 100 species, which includes *L. latifolius*, the Everlasting Pea, *L. magellanicus*, Lord Anson's Pea, and *L. odoratus*, the Sweet Pea (q.v.).

**Latimer**, Hugh (c. 1485-1555), reformer, son of a yeoman, b. Thurstaston, near Leicester, educ. at Cambridge; elected a fellow of Clare College in 1510, and appointed a univ. preacher in 1522. He took priest's orders in Lincoln at a date unknown. In 1529 he incurred disfavour as being known to sanction Henry VIII's divorce. He was consecrated Bishop of Worcester in 1535 and preached powerful sermons, urging on the Reformation. He was impeached and sent to the Tower twice during Henry's reign, and on the accession of Edward VI resigned his episcopal functions and devoted himself to preaching and works of benevolence. Under Mary in 1555 he was found guilty of heresy, together with Ridley and Crammer, and burned at Oxford, an event commemorated by the

Martyrs' Memorial. See J. Foxe, *Book of Martyrs*, 1563 (new ed. 1877); J. Stow, *Chronicle*, 1631; J. C. Ryle, *Bishops Latimer and Ridley*, 1925; and monographs by A. J. Carlyle, 1899, and R. Demaus, 1869.

Latimer Clark's Cell, see CELL.

**Latimeria**. On 22 Dec. 1938 a S. African trawler working in 37 fathoms of water near the mouth of the Chalumna R. (18 m. SW. of E. London) caught a large odd-looking, bluish-coloured fish. Subsequent examination by Prof. J. L. B. Smith proved that this was a living coelacanth, a representative of a group of crossopterygian bony-fishes that was believed to have become extinct some 50 million years ago. The fish was called *L. chalumnae*. A second example was caught in 1952 in the Comoro Archipelago in the N. part of the Mozambique Channel. Since then another 6 specimens have been taken in this region by the Madagascar Institute of Scientific Research and are now being studied by Prof. Millot and his colleagues.

Like its fossil relatives, *L.* has 2 dorsal fins and only the posterior one has a basal fleshy lobe. The anal fin has much the same structure as the second dorsal while the paired fins are paddle-shaped, each with a basal, scale-covered lobe. The tail is quite characteristic and consists of 3 lobes, a large upper and lower lobe flanking a small terminal centre portion. But there is no ossified swimbladder in *L.*, as in some of the fossil coelacanths; but this organ, which originates from the ventral part of the gullet, is much reduced and surrounded by fatty tissue. *L.* lives at the bottom in fairly deep water and seems to exist largely on other fishes. It grows to about 5 ft in length. All but one of the complete specimens have been males. The female contained a small number of large eggs. See also COELACANTHES.

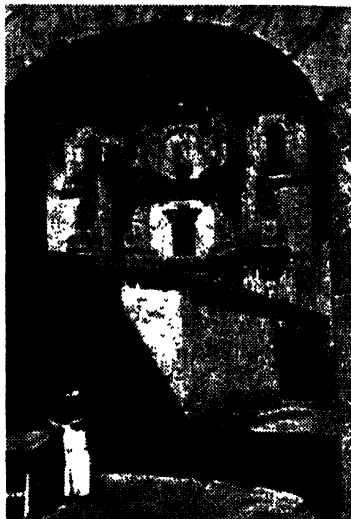
**Latin America**, name given to the 20 reps. of S. and Central America: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Rep., Ecuador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Salvador, Uruguay, and Venezuela (qq.v.). This whole vast area of 8,278,000 sq. m., of which one state alone, Brazil, is larger than the U.S.A., has an unevenly distributed pop. of 170,000,000, and though a high proportion of these are aboriginals, a high percentage of the whites owe their origin to their Sp., Portuguese, and It. immigrant forefathers. Hence the broad generic description Latin-American, though there is no juridical significance to be attached to the description and, strictly, no such citizen or 'national' as a 'Latin-American.' But the term has an importance as denoting among the states a common ideological outlook, a pride in independence, and an approach to political solidarity in their joint and sev. relations to the U.S.A. and in their European relations.

Bound together as they are by common

ties of race, language, and character, these Lat.-Amer. states may be regarded as forming a natural, although not a political, federation, with a well-marked distinctive civilisation opposed to, but not necessarily clashing with, that of their Anglo-Amer. neighbours in the N. The economic and social development of 19 of these independent reps. (i.e. excluding Haiti, of French culture), upon which Spain and Portugal have so indelibly impressed their languages and social systems, has become of increasing interest and importance to the world, and they have now in the last

differences of elevation, which account for the variations of climate such as correspond practically to differences of lat., render many of these countries complete entities as regards their food products and other resources.

The Lat.-Amer. peoples are commonly subject abroad to certain misconceptions concerning their racial composition. They are regarded on the one hand as Spaniards or Portuguese, or on the other as merely half-breeds. Neither description is correct; the great mixed race of European and Indian blood, the *mestizos*, which



*Mexican Embassy*

#### TWO EXAMPLES OF SPANISH COLONIAL ARCHITECTURE

*Left:* Church of San Francisco Acatepec, Puebla, 16th century. *Right:* Church of La Soledad, State of Oaxaca, early 18th century.

decades begun to play their part in the community of nations, although some of their own problems remain unsolved. To the student of the sociological problems which are everywhere presenting themselves with increasing urgency, the progress of self-governing democracy as represented by L. A. offers conditions and comparisons of growing interest and value. The problems of life and economic development in L. A. differ greatly from those which fall within the experience of European nations, for great variations of topography and climate characterise the S. half of the New World, such as are unknown in the densely settled countries of the Old World, or even by the people of the U.S.A. and Canada. The condition of high elevation, which offsets the heat of the torrid zones, must be one which will profoundly affect the future of the Lat.-Amer. countries and people; and the great

forms the bulk of the Lat.-Amer. nations, is too far removed from the original stocks to be specially identified with either. With the stock formed by admixture of white and coloured races, other races are mingling in increased degree, due to immigration, especially that of Italians, who have greatly modified the composition of the people of Argentina. British, Germans, French, Arabs, Austrians, Slavs, and a sprinkling of all nationalities are found in smaller degree. The Negro element is derived from slaves and is especially strong in Brazil, where a new race may be said to be coming into being, formed by the union of the Portuguese, the Indian, and the Negro. There are also blacks in Colombia, Venezuela, and on the coast of Ecuador, and in Peru, where they were introduced as slaves. The distinguishing types of people inhabiting L. A. are the whites, more or less

pure; the mestizos, formed by the union of white and aboriginal; and the pure Indian; then come the mulatto, formed by the union of black and white, and the zambo, from the union of Indian and black. The first three are those of national importance, but it is to the mestizo that the future of L. A. belongs; and it is this class which constitutes the Mexican, Brazilian, Peruvian, Chilean, and other specially designated people of the New World. It is commonly said that the mixed race of L. A. has inherited the vices of both of its ancestors, but this is too sweeping a characterisation. Rather is it an evolving race, full of life, with the extravagances of a people in the making, in whose hands, too, lies the development of half the W. hemisphere. The character of the ruling classes of the Lat.-Amer. people, formed by the whites and better class mestizos, is a complex one, with marked virtues and defects. They are a people full of imagination, creatures of impulse, moved by sentiment and easily stirred to love or hate, both of which extremes are generally short-lived. Their ideals are high, but in practice they may easily follow tortuous methods and opportunism. The constant plunging of the communities into civil war and the sacrificing of the working pop. as 'cannon fodder' has held back the industries and development of the Lat.-Amer. states. The hist. of these reps., since the time of independence, is made up of such struggles. The abuse and neglect of the Indians in L. A. is notorious and certainly the Indian has vices which keep him backward, notably his abuse of alcohol, in which abuse the lower-class mestizo shares equally. But abuse of the Indians is a short-sighted policy in regard to a people who occupy large portions of the continent, and in certain regions no race could replace them. The political difficulties of the Lat.-Amer. nations and their backward sociological conditions cannot be ascribed to their form of gov., for as far as statutes and theories are concerned those are excellent. The Lat.-Amer. constitutions are, on paper, 'counsels of perfection.' It is in the application of theory to practice, and statute to common behaviour, that failure in self-gov. has so often been due. The man of Sp. race makes excellent laws for the community, but frequently appears to reserve the right to contravene them himself.

Historically L. A. was once a colony of Spain and Portugal. The Sp. conquistadores, after brutally conquering the Indians, Aztecs, Incas, and Chibchas, exploited the Indian tribes by compelling them to labour as miners and agriculturists. But at the beginning of the 19th cent., long after Sp. and native blood had mingled, out of a total pop. of 17,000,000 only 3,250,000 were white to 7,500,000 Indians. Immigration into L. A. on any appreciable scale was a late development of the 19th cent., and the main stream of immigrants flowed into S. Brazil, Argentina, Uruguay, and Chile. Spaniards and Portuguese predominated,

but there were also large elements of Italians and Germans. Indeed a third of the pop. of Argentina to-day is of It. descent and more than a third of the immigrants into Brazil between 1830 and 1930 was Italian. Germans number 750,000 in Brazil, and in Argentina there are some 250,000 Ger.-speaking people, including Swiss and Austrians. Brazil also has 200,000 Japanese, the outcome of an intensive colonising drive concentrated within the present cent. Immigration has given an almost European outlook to Argentine society, besides conducing greatly to the material and social welfare of the R. Plate countries and S. Brazil. But it has to be borne in mind that L. A. is not a unity despite the prevailing descent from the Lat. races of the Old World. The different states differ widely in wealth and power, and also in social and political development.

Spain's great Amer. empire was more or less completely explored and colonised by the end of the 16th cent. It was of long duration and amazingly wealthy, mainly through its exploitation of the precious metals. But essentially the Sp. overseas empire of L. A. was a failure. Its potentialities excepting metals were neither realised nor exploited; there was no such principle as trusteeship in the relations of their Sp. masters to the indigenous people or even to the European settlers. Spain administered her Amer. empire as a centralised absolutism; colonials were excluded from all share in the work of gov. or even of administration. Economic and administrative reforms were made at long last in the 18th cent., but they came too late to save the empire, which collapsed in the beginning of the 19th. The immediate causes of the collapse were Spain's monopolistic myopia and the plunder of her foes. These latter included many great leaders famous in the annals of the Sp.-Amer. struggle for independence, particularly San Martín and Simón Bolívar, liberators respectively of the S. and the N. of S. America, revered not only as great leaders in the field but as statesmen. But having achieved independence in the Sp.-Amer. revolution, the Lat.-Amers. were faced with the still greater task of organising their states in their newly won freedom, and in this task were associated many Brit. names, notably those of Lord Cochrane, who commanded the Chilean Navy, Adm. Brown, who commanded the ships of Argentina, and the Brit. legionaries who fought under Bolívar. The independence of L. A. was assured by Brit. sea-power and by Lord Castlereagh's note to the European chancelleries in 1817 saying that no other power than Spain would be allowed to use force against the Sp. colonies. Some few years later President Monroe of the U.S.A. sent his famous message to Congress which has come down to posterity as the Monroe Doctrine (q.v.), a still further guarantee of the independence of the new states, albeit conceived rather in the interests of that of the U.S.A., whatever its implications to-day.

By 1830 12 new reps. and 1 new empire had been added to the number of independent states. There were 16 new reps. if the 5 reps. of Central America are counted separately. These latter, in 1823, were theoretically united in the confederation of Central America, which survived only till 1838. Cuba did not attain self-government till 1902 and Panama not till 1903. Haiti declared its independence of France in 1804, but the Dominican Rep. fell under the dominion of Haiti and later was again incorporated with Spain for a few years.

by Brit. capitalists in L. A. Foreign immigrants, together with foreign investments in S. Amer. shipping, ports, and public utilities, have all played a decisive part in the spectacular rise of some of these states. Even if the reps. of L. A. show very different degrees of progress, politically, economically, and socially, all profess a common democratic faith, though dictatorship remains in those which have a large aboriginal pop. There are still great difficulties, economic, psychological, and practical, to be mastered in the relations of the Lat.-Amer.



LATIN AMERICA: MEXICAN TYPIKS  
Indian women of Michoacán.



E.N.A.

A man of Taxco.

The great rep. of Colombia, the creation of Bolívar, split into the 3 states of Ecuador, Colombia, and Venezuela. Brazil threw off the Portuguese yoke by a peaceful revolution and, by 1822, had estab. an empire under the house of Bragança. The boundaries of the new Sp.-Amer. States followed, in the main, the old colonial administrative divs., but they were ill defined and the source of innumerable inter-state conflicts. But though independent the states were far from prosperous. The masses were for the most part poor and ignorant; their politicians lacked experience in autonomy; dictatorship was not only inevitable but necessary to their welfare. But the eventual independence of L. A. justly ranks with the Amer. and Fr. Revolutions as one of the chief formative influences of modern hist. Capital flowed from Europe into the new states. Already by 1825 more than \$20,000,000 had been invested

States to one another, to the U.S.A., and to the world around them, before it can be assumed that they have evolved out of the stage of political instability. Poverty and ignorance remain widespread in the midst of great cultivation and great wealth. A high percentage of the people in Brazil, Peru, and Ecuador are illiterate. Yet there is a high degree of literary attainment among Lat.-Amer. writers generally.

Politically, economically, and intellectually these Lat.-Amer. reps. are destined to play an increasing part in world affairs. Between L. A., the U.S.A., and the Brit. Commonwealth of Nations there are traditional and permanent bonds of mutual sympathy, mutual interests and mutual ideals. The development of the Monroe Doctrine into what once seemed to be an assertion by the U.S.A. of sovereignty and supremacy in the Caribbean area roused the greatest resentment

in L. A., for it was regarded by the reps. as a threatened infringement of their equality in international law and of their political independence. But the U.S.A.'s policy was profoundly modified under both Wilson and Franklin Roosevelt, their 'good neighbour' policy signalling a distinct change in inter-Amer. relations, as was exemplified in later Pan-Amer. conferences and especially after Amer. troops were withdrawn from the Dominican Rep., Haiti, and Nicaragua. Later political developments in inter-Amer. relations were the inter-Amer. conference for the maintenance of peace at Buenos Aires in 1931, and the declaration of Lima in 1938, which was a striking pronouncement of inter-Amer. solidarity in face of the Nazi threat to the world. Finally, in the interests of what is known as 'hemisphere defence,' all the Amer. states have shown an increasing tendency towards the co-ordination of their military and naval resources.

Conspicuous changes have been wrought in L. A. since the 2 world wars; civil aviation is revolutionising S. Amer. life to an extent greater than in any other part of the world. The effect of rapid travel over the S. Amer. countries, with their vast distances and lack of ground and water communications, can hardly be exaggerated. The second great change is industrialisation. Hitherto this continent has mainly produced foodstuffs and raw materials, depending for its manuf. goods on Europe and N. America. The 2 world wars, by almost paralysing sea-borne trade, compelled these countries to adopt a policy of industrial self-sufficiency. Since then local industries, especially in the Argentine and Brazil, have made great advances. Thus São Paulo, the industrial cap. of Brazil, has increased its pop. from 200,000 to 2,000,000; while the industrial production of the Argentine has exceeded the combined value of its agriculture and stock-raising. These developments naturally present economic problems to countries like Great Britain which formerly supplied L. A. with most of their imports of manuf. goods, especially as in every country of L. A. the govs. are active supporters of local industry and the chief distributors of commercial and industrial orders—the natural consequence of the parallel growth of Nationalism (q.v.) and State Socialism. It would appear that the solution of this problem, at least for Britain, can lie only in a more discriminating co-operation between her importers and the S. Amer. market than was necessary in the past. Yet despite the confidence in Lat.-Amer. countries, for which there is much sound reason, there are also obstacles to progress imposed by natural conditions which may discourage the European immigrants whom it is the avowed policy of many Lat.-Amer. countries to encourage in ever increasing numbers. For within even a short drive of, for example, Rio, most civilised of cities, there is virgin forest. European immigrants could not live in savage places unless

civilised life were made possible for them. If they came to the continent to-day most of them would drift into the great Lat.-Amer. cities and make the urb. pop. even more disproportionate than ever in its relation to the pop. of the country. Only a long, patient, and consistent programme will people the vast expanse of forest jungle and impenetrable swamp that covers so much of the surface of L. A. to-day. (For the physical features and description of L. A. see ANDES; CENTRAL AMERICA; SOUTH AMERICA; see also under the names of individual states). See PAN - AMERICAN CONFERENCE; PAN - AMERICAN UNION; PAN-AMERICANISM.

*Latin American Architecture.* In Lat. America outstanding developments have recently been taking place. Particularly noteworthy are the Univ. City, Mexico City; the new city centre of Caracas, Venezuela; the ministry of education building in Rio de Janeiro, Brazil; and Niemeyer's church at Congonhas do Campo, Brazil. In Brazil, great progress has been made in urb. building. The Pan-American 'Low-cost Housing Centre' in Colombia is significant of the widespread effort to overcome modern problems by modern methods. Many books have been written on this subject: a satisfactory introduction is Francis V. Lich, *Cities of Latin America*, 1944.

See A. Joyce, *South American Archaeology*, 1912; J. Bryce, *South America, Observations and Impressions* (an important record of conditions before 1914), 1912; J. F. Rippey, *Historical Evolution of Hispanic America*, New York, 1932; H. Gerth, *Geologie Südamerikas* (2 parts), 1932, 1935; M. W. Williams, *The People and Politics of Latin America* (2nd ed.), 1938; C. K. Webster, *Britain and the Independence of Latin America* (select documents from the archives of the Foreign Office), 1938; F. A. Kirkpatrick, *Latin America*, 1938; R. A. Humphreys, *The Evolution of Modern Latin America*, 1946; V. W. von Hagen, *Maya Explorer: John Lloyd Stephens and the lost cities of Central America and Yucatan*, 1947; S. de Madariaga, *The Rise of the Spanish American Empire*, 1947, and *The Fall of the Spanish American Empire*, 1948; P. E. James, *Latin America* (with a detailed bibliography), 1950; G. J. Butland, *Chile*, 1951, 1953; G. Pendle, *Uruguay*, 1952, 1954, *Paraguay*, 1954, and *Argentina*, 1955; J. A. Camacho, *Brazil*, 1953, 1954; W. O. Galbraith, *Colombia*, 1953, 1955; L. Linke, *Ecuador*, 1954, 1955; H. Osborne, *Holivia*, 1954, 1955; P. Schmid, *Beggars on Golden Stools*, 1956; W. L. Schurz, *This New World*, 1956.

*Latin Empire*, see BYZANTINE EMPIRE. *Latin Language and Literature.* I. LANGUAGE. Latin belongs to the Italic (in the wide sense of this word) branch and the Latinian sub-branch (the Faliscan dialect being its other member) of the Indo-European linguistic family (see INDO-EUROPEAN LANGUAGES and LINGUISTIC FAMILIES). It was originally spoken by the inhab. of the anct city of Rome (founded according to tradition

in 753 BC) and by the Italic tribe called Latini, who dwell S. of the R. Tiber on the plain to which they gave the name Latium. Curiously enough both the Lat. language and the Lat. alphabet (see ALPHABET; PALAEOGRAPHY; WRITING), which have such a great importance in the hist. of civilisation, had a very poor beginning and a very poor hist. during the first half millennium of their existence. Indeed the records are too scanty to trace the detailed linguistic hist. of Latin in the first period of its development, which lasted till about the middle of the 3rd cent. BC. In this period Latin was still as crude and undeveloped as any other Italic dialect; as far as it is possible to judge from the extant inscriptions and other records the more important Italic dialects, i.e. proper Italic (Umbrian, Oscan, Siculan, Sabine—there were some minor dialects, such as Paelignian, Volscian, Marrucinian, and others), indicate a greater grammatical competence than existed at the time in Rome. There are many differences between the Italic and the Latinian dialects, both in the structure and in the grammar: (1) for instance, the Indo-European velar-guttural sounds represented in the Latinian dialects by *qu* and *u* or *gu*, following *n*, are represented in the Italic dialects by *p* and *b* respectively (the former thus constituting the Q-group, the latter the P-group); *s* preceding nasals was preserved in Italic but not in Latin; syncope is much more frequent in Italic than in Latin; and so forth; (2) the Italic dialects have different verb formations (-*f*, -*t*, -*i*, -*nt*) where Latin has -*ut* (-*vi*); they have futures in -*s*, instead of the Lat. -*b*-, and future perfects in -*ust*; they retain -*s* in the nominative plural of *o* and *a* stems, and the short -*es* in the nominative plural of consonant stems; their genitive ends throughout in -*s*; they do not have the new genitive plural of Latin in -*rum*; and so on.

On the other hand, Latin of this early period was not quite the same as that of the later periods: intervocalic *s* has not yet become *r*; the old ending of the dative -*oi* still remains; *quoi* is used for *qui*, *recci* for *regi*; there are archaic forms such as *sakros* (for later *sacer*), *iousmentia* (for *umentum*), *diouested* (for *iusto*), and so forth. This archaic Latin can be studied in a few inscriptions which have been preserved. The oldest record is to be found in the Praeneste fibula (found in 1886), a gold brooch dating probably from the 7th cent. BC, rather than from the 6th or even the 5th cent., as some scholars were inclined to think. The inscription runs from right to left and reads MANIOS: MED: FEEFHAKE: NUMA: SIOI, i.e. in classical Latin, *Manius me fecit Numerio* ('Manius made me for Numerius'). The most interesting feature of this inscription is the use of the device of combining the letters *f* or rather *v-w* (digamma) and *h* to represent the sound *f*, which was common in Latin, but was wanting in Greek. Not much later is the famous inscription from the Rom.

Forum, belonging to the 6th cent. BC (some scholars, however, assign it to the 5th cent. BC). It is engraved vertically on the 4 faces of a *cippus*, a broken pyramidal stone found in 1899. The inscription is in boustrophedon style, i.e. in lines alternatively reading from right to left and left to right, or rather, in this case, upwards and downwards. The loss of the upper part of the *cippus* makes every line incomplete, and therefore the meaning of the whole inscription cannot be clearly ascertained. Another inscription, known as the Dueros inscription (the most intelligible part reads DUENOS MED FECEB), is on a vase found in Rome, near the Quirinal, in 1880, and seems also to belong to the 6th cent. BC, although it is dated by some scholars as late as the 4th cent. BC. The direction of writing is still from right to left. There are about 30 words, but as there are no spaces or interpunction between them (as on the preceding 2 inscriptions), the exact wording and the general interpretation are much disputed.

Some Sabine inscriptions, among them one on a vase found at Tivoli, another on a plate of bronze found in the lake of Fucino, and a few inscriptions dedicated to Juno or Juno Lucina, belong to the end of the 5th or to the 4th cent. BC. There are also a few inscriptions belonging to the 3rd cent. BC and to the 2nd cent. BC. Among the former there are the inscriptions on the tombs of the Scipios, the oldest being on the tomb of L. Cornelius Scipio Barbatus, who d. in 298 BC; this inscription, originally painted on and afterwards engraved, is assigned to about 260 BC (or slightly later); there is also the inscription of the tomb of the famous consul L. Cornelius Scipio, who d. in 259 BC. Only from the 1st cent. BC onwards do the Lat. inscriptions become so numerous all over the world that they cannot be counted. Sometimes, however, documents were preserved which were copies of originals composed in much earlier times. For instance, the very ant. hymn of the Arval brethren is found in a very corrupt form dating only from AD 218. The fragments of the laws of the 12 tables come down from 450 BC, but the documents preserved cannot be assigned to an earlier period than the 1st cent. BC.

The second period of Latin, which may be termed the archaic literary period, was brought about by two main causes: (1) the Romans gradually made themselves masters of the Peninsula; Latin estab. itself as the lingua franca of Italy, and in this process of expansion Latin became richer by its contacts with Oscan, Umbrian, and Etruscan; (2) the contact with the Greeks of Magna Graecia (q.v.) gave an immense and lasting stimulus to literary production. The second period, lasting from c. 250 to 90 BC, contains a considerable mass of literature, though only a small fraction has been preserved. Rom. power, which was constantly spreading, had already extended to a large part of Italy and Sicily. Latin became more and more adapted to the needs of legal, administrative, historical, and rhetorical writing



of a great empire. At first the ancient dialects had not perished under the influence of Rom. civilisation and gov.: only with Sulla's victory in the Social war (82 BC) had the last chance of any Italic dialect of achieving supremacy over Latin for ever passed away. At the same time the Lat. literary language separated from the vulgar dialect of Rome; the latter, also called *sermo cotidianus*, or daily life language, became general throughout Italy, although in each region it borrowed considerably from the previously spoken languages. The peasantry, without doubt, spoke dialects in which the inflections had never been developed or had been dropped. Some scholars doubt whether the literary language was ever spoken. However, although for a certain period literary Latin remained almost unchanged in sounds and forms, men of letters had attempted to improve the methods of recording the language; some reforms (those introduced by Aelius and Lucilius) failed, others were successful (the introduction of double consonants by Ennius). Many old forms died out or were retained only in legal, religious, or poetical language. L. Aelius Stillo, b. c. 154 BC at Lanuvium, may be considered as the first Lat. philologist. The literary language slowly acquired various characteristics, which remain typical of it, but it has not yet been reduced to a uniform system, and many irregularities appear in structure, grammar, and syntax. It is, however, symptomatic that the most important authors, Plautus, Terence, Ennius, were not Romans, nor even Latin by birth; Plautus especially is generally regarded as writing excellent Latin. The third period of Latin, the classical or golden age of Lat. L. and L., roughly extends to the Christian era. This period saw the zenith of Lat. style, first in prose and then in poetry: indeed, Latin has now reached its highest pitch of excellence. In the hands of Lucretius, Catullus, Virgil, and Horace Latin received its finest form as a poetic instrument. Lucretius and Cicero created the Lat. philosophical language, the latter, however, representing nearly all sides of Lat. styles, and especially excelling in oratory and the high polished language used in the law courts. He may be considered as the greatest artist in Lat. prose. Salustius, and Livy are the great artists of the Lat. historical style. Lat. prose reached its full maturity in the reign of Augustus, when it attained perfect clarity while keeping its former solidity and dignity. The fourth period of Latin may be termed its silver age. This period lasted to AD 117 (corresponding to the death of Trajan). The change was chiefly stylistic, but it was a change for the worse; it is particularly noticeable in poetry, which became contaminated by rhetoric. Moreover, the 'prestige of the older writers prevents the new from attempting to rival them on their own lines; all that is left for them to do is to express the old ideas in a new way' (Giles). Literary Latin more and more became marked by an affectation of

ornament and straining after rhetorical effect. Partly Livy, but particularly Propertius, may be considered as the forerunners of the Lat. silver age. An exaggerated conciseness and point take the place of the more elaborate periods of the past. It would, however, be wrong to assume that there were no great Lat. writers in this period; it is sufficient to mention Tacitus, Suetonius, or Quintilian, to prove that there were still great masters of Latin, although there was no hope for a new writer of surpassing his predecessors on their own ground.

*The expansion and decadence of Latin.* With the conquests of the Rom. legions, Latin had spread into countries far from Rome, and was almost universally adopted throughout the W. civilised world. In a few countries (Gaul, Spain, and Rumania) Latin replaced the languages of the natives, and it became the ancestor of the modern Romance languages (Italian, Spanish, Portuguese, Provençal, French, Rumanian, and sev. minor dialects). At the same time, however, with the increase of commerce and travel, the Lat. vocabulary became increased by borrowings from foreign languages, and many words of common use crept into the literary language.

*Late Latin.* The tradition of writing in Latin was kept up by Christian and other medieval scholars, who, however, used an impoverished and disorganised form of the language known as Late or Low Latin (q.v.). Churchmen and missionaries carried the Lat. language further afield for many more cents. Catholic Rome was then the light of the W. world, the centre whence religion and learning were disseminated to all parts of W., Central, and N. Europe. In consequence Latin, the language of the Rom. Church, became and remained for many cents, the international tongue of the European higher intellectual world, and it was the language of the higher schools in W. Europe until the time of the Reformation. Schoolboys everywhere from Italy to Scotland read Latin and were taught Lat. grammar. Before the invention of printing nearly all important MSS. in the W. world were written in Latin. The first book printed was a Lat. Bible. Univ. profs. lectured in Latin. It was the language of diplomacy until the end of the 17th cent. (Milton was employed by Cromwell as the Lat. secretary to translate state papers received from other countries and to write replies in Latin.) Even nowadays Latin is still used extensively for learned works and the theological treatises in the Rom. Catholic Church, although it lost its dominant position in consequence of the natural development of the last three cents.

Latin is a highly inflectional language (see LANGUAGES, CLASSIFICATION OF). Nouns have 3 genders, but only singular and plural numbers, the dual number (still preserved in Greek) being only present in 1 or 2 Lat. words, such as *ambo*, 'both.' Latin has 6 cases, nominative, genitive, dative, accusative,

vocative, ablative (lacking in Greek), with traces of a locative. Unlike Greek, Latin has no article, no aorist tense, and only traces of an optative mood and of a middle voice; it has also less facilities than Greek of making compound words and expressing abstract terms; it is also less free in verbal syntax. On the other hand, it has fuller passive inflections than Greek; it has 5 declensions of nouns (Greek has only 3). Although it has not that variety of particles and prepositional usage which make Greek a perfect instrument for expressing the subtlest philosophical thought, it has greater conciseness and precision. For Lat. script see ALPHABET and under the single letters (A, B, C, D, etc.). See H. S. Roby, *A Grammar of the Latin Language from Plautus to Suetonius*, 1887; T. R. Glover, *Life and Letters in the Fourth Century*, 1901; P. Giles, *A Short Manual of Comparative Philology for Classical Students*, 1901, and 'The Languages of Italy' in S. E. Sandys's *A Companion to Latin Studies*, 1925; F. Skutsch, *Die Kultur der Gegenwart*, i. 8, 1905; O. Wiedermann, *Historische Lautlehre der Lateinischen*, 1907; O. Riemann and P. Lejay, *Syntax Latine* (5th ed.), 1908; O. Weise, *Language and Character of the Roman People* (trans.), 1909; F. Stolz, *Geschichte der lateinischen Sprache*, 1910; T. Frank, *Life and Literature in the Roman Republic*, 1930; D. Diringer, *The Alphabet* (4th impression), 1953 (with bibliography).

2. LITERATURE. It is impossible to fix with any precision the beginning of Lat. literature in Rome and the neighbouring Lat. communities, that is to say, the date when the art of writing was employed consciously in literary form. Of Lat. inscriptions the earliest known to us is the *Fibula Inscription*, engraved on a brooch found in a Praeneste tomb of the 7th cent. BC; and many inscriptions of various kinds, belonging to a period prior to the 3rd cent. BC, have been preserved. Some on tablets commemorate victories; others on coffin lids or on busts take the form of epitaphs and eulogies. Legal, historical, and religious records were preserved, including those of the Arval Brothers (q.v.) and the Twelve Tables, fragments of which survive. Oratory appears to have been esteemed at an early date, for Cicero tells us that a speech of Appius Claudius delivered in 280 BC was extant in his time. Besides the traditional hymns and ballads of a peasant folk, there were *Fescennine verses* (q.v.), an infant form of the *satura* (see SATIRE), which included ribald songs sung at harvest, vintage, and wedding festivals. But these early writings were only the crude efforts of a young race; the literature of the Rom. people did not, strictly speaking, begin until the middle of the 3rd cent. BC.

The first period of Lat. literature, commonly called the pre-classical period, extends from about 250 BC to about 85 BC. During this time the Romans made experiments with various literary forms, with tragedy, comedy, satire, and epic and

didactic verse. At the close of the Punic war in 241 BC, Rome having secured her position as mistress of the Mediterranean, her more wealthy citizens turned to the leisurely pursuit of learning. The only literature that was available to them was that of Greece, and Gk culture continued to hold sway over Rom. thought to the end. It is a significant fact that the hist. of Lat. literature begins with the name of Livius Andronicus (c. 284-204 BC), a Gk captive of Tarentum, who is celebrated for having produced, in 240 BC, the first



CATO THE CENSOR  
Lateran Museum, Rome.

drama on the Rom. stage. His plays were adaptations from the Greek, and achieved such success that theatrical performances became a permanent institution in Rome. Andronicus also trans. the *Odyssey* into Saturnian verse, and wrote at least one hymn of thanksgiving. Considerable progress in the development of the drama and the epic was made by his 2 younger contemporaries, Gnaeus Naevius (c. 270-c. 201 BC) and Quintus Ennius (c. 239-169 BC). Naevius wrote a great number of comedies and some tragedies, the majority of which were based on Gk originals. But in 2 cases, at least, he handled materials provided by the hist. of his own country, and may therefore be said to have founded the national drama. His *Atimonium Romuli et Remi* treated of the legendary founding of Rome, and the *Clastidium* dealt with a contemporary historical event, namely, the victory of M. Marcellus over the Gallic tribes in 222 BC. Naevius also laid the foundation of the Rom. national epic. His *Bellum Poenicum*, a

verse chronicle, narrating the events of the first Punic war, in which he himself had taken part, was an acknowledged classic in Horace's days, and was undoubtedly an important source of Virgil's *Aeneid*. Only a few fragments of his works remain.

Ennius, 'the father of Rom. poetry,' was b. in a dist. of Calabria, known as Magna Graecia on account of the number of Gk colonies that had sprung up in the neighbourhood. Consequently in early life he was as familiar with the Greek as with his native tongue, and when he came to write his *Annales*, an epic of Rom. hist. in 18 books, he chose the Gk hexameter in preference to the native Saturnian metre. Ennius showed considerable power, too, as a writer of tragedies. These were modelled chiefly on the dramas of Euripides, but were infused with the true Rom. spirit. A more important branch of his work must be mentioned. His *saturnae* differed from the musical 'medleys' which have already been noted in connection with the early beginnings of Lat. literature. They were really collections of miscellaneous poems on fabular, philosophic, didactic, and various other subjects. A few of these, written probably through the influence of Aristophanes and Cratinus, dealt with contemporary events in a satirical tone, and hence prepared the way for the 'satire' proper, a purely native product of anc. Italy. The satire, as he used it, was later developed by Gaius Lucilius (c. 180-102 BC), who, employing the dactylic hexameter, brought all spheres of political, social, and literary life within the range of discussion, and lashed pitilessly at the vices and absurdities of his time. Naevius and Ennius were succeeded by Marcus Pacuvius (220-c. 131 BC) and Lucius Accius (170-c. 85 BC), who were regarded as the most important tragedians of Rome, but whose works have unfortunately not survived, except for a few fragments. Pacuvius, who was a nephew of Ennius, wrote imitations of Gk plays, as well as praetextatae (i.e. plays whose plots are derived purely from Rom. hist., and in which the hero wears the *toga praetexta*, the official robe of a Rom. magistrate). Accius was apparently a far more prolific writer. His tragedies were chiefly imitated from Gk models, but some were on Rom. subjects. He wrote *Brutus* and *Decius*, examples of the praetextatae tragedies, of which the titles and fragments of nearly 50 remain, and poems on miscellaneous subjects, such as grammar, poetry, acting, mores, antiquities, etc., which have been lost.

The chief exponent of Rom. comedy was Titus Maccius Plautus (c. 254-184 BC). Of his plays 21 are extant, which are all included in the list of genuine plays compiled by Varro. The best of these are the *Captivi*, *Menaechmi*, *Miles Gloriosus*, *Amphitruo*, *Bacchides*, *Rudens*, and *Pseudolus*. They are excellent examples of the *fabula palliata*, a particular class of Rom. comedy so called from *pallium*, a Gk mantle, because it was derived from Gk sources. Plautus modelled his style on the New Attic Comedy of

Menander, Philemon, and other Athenian poets. Though in form and matter Plautus followed Gk models, he nationalised his plays by introducing incidents, situations, and customs peculiar to the life of Rome. His work is not infrequently slipshod, but he had a masterly command over language and an inexhaustible fund of lively, though often coarse, wit. Plautus's influence on modern comedy is inestimable; to the dramatists of the Renaissance he was, with Aristophanes, the model for comedy. His influence is manifest in the work of Shakespeare and Molière, as well as in the Restoration Comedy of Manners.

Plautus's immediate successor in Rome was Q. Caecilius Statius (c. 220-168 BC), an Insubrian Gaul, who had been brought captive to the city about 194 BC. He is to us, however, hardly more than a name. The titles of some 40 of his plays have survived, and he appears to have been held in high esteem. A more cultured, but less virile writer was Publius Terentius Afer (c. 195-159 BC), who, according to tradition, produced his first comedy, *Andria*, under the patronage of Caecilius Statius. Terence was a Carthaginian prisoner of war, and received his emancipation and education from the senator Terentius Lucanus. His literary gifts admitted him when a youth into the most aristocratic circles of Rome, and he became an intimate friend of men such as Gaius Laelius and the younger Scipio Africanus. Besides the comedy already mentioned, he wrote *Hecyra*, *Heautontimorumenos*, *Eunuchus*, *Phormio*, and *Adelphi*, all of which are extant. Terence adhered more closely than Plautus to the Gk originals, retaining also the Gk background to his scenes. His plays are chiefly distinguished by their elegance and artistic finish; he lacked the vigorous originality of Menander and the fresh wit of Plautus.

After the death of Terence a new kind of comedy sprang up, known as *fabula togata*, the form of which was still Greek, but the life and characters Italian. Examples of it remain only in fragments, and it is improbable that it ever had any literary value. The earliest representative of this latter form of Lat. comedy was Titinius, who flourished about 150 BC. His most important successors were Quinctius Atta (d. 77 BC) and his contemporary, Lucius Afranius, who was praised by Cicero and retained some of his popularity as late as Nero's time. However, the development of Lat. comedy virtually ceased with the death of Terence. The Rom. populace preferred for holiday entertainment the more sensational performances of *mimi*, jugglers, and gladiators; and literary enterprise was therefore obliged to seek fresh channels of expression.

Lat. prose, not unnaturally, was of late growth. From the very earliest times prose was used in the necessary business of city life. The earliest inscriptions, epitaphs, laws, and records were written in prose, but the development of prose style, the recognition of prose as a literary

medium of expression, took place late in the hist. of Lat. literature. A prose style was gradually formed by the practice of public speaking, oratory being an art in which Romans excelled. Marcus Porcius Cato (334-149 BC), commonly known as 'Cato the Censor,' was regarded as the founder of Lat. prose literature. About 150 of his speeches were extant in Cicero's time, but have not come down to us. Cato's contemporary orators included C. Laelius and the younger Scipio, who were succeeded by Marcus Lepidus Porcina (fl. 137 BC) and the famous Gracchi (Tiberius, 163-133 BC, and Gaius, 154-121 BC). The oratory of the next generation, and in particular of Marcus Antonius and Licinius Crassus, attained a higher level of literary perfection, until we reach the unrivalled speeches of Cicero.

Meanwhile scientific treatises were written on the rules of rhetoric, only one of which is extant, namely the *Rhetorica ad Herennium*, formerly ascribed to Cicero, but probably the work of one Quintus Cornificus. The early annalists, who include Fabius Pictor, the historian of the second Punic war, and Cincius Alimentus, who was taken prisoner by Hannibal and narrated his personal experiences, wrote in Greek, probably because Latin was not sufficiently developed to meet the requirements of prose composition. Cato the Censor was the first to write a hist. of Rome in Lat. prose. His *Origines*, in 7 books, brought the hist. of the city down to his own time and comprised the results of his wide study and personal experience. The only work of Cato which has survived is a treatise on agriculture, *De Re Rustica*, to which Virgil probably had recourse in writing his *Georgics*. But Cato's influence prevailed chiefly as an historian, and his successors, Cassius Hemina, Calpurnius Piso Frugi, Caelius Antipater, and others, borrowed freely from the *Origines*. An advance was seen in the work of Claudius Quadrigarius (fl. 80 BC), who showed judgment in his choice of material by rejecting all legendary and doubtful records. Sulla, the dictator, who lived about the same time, wrote a memoir of his own life and times, entitled *Rerum Suearum Commentarii*. Sempronius Asellio (fl. 100 BC) in his *Rerum Gestarum Libri* was not content with giving facts in chronological sequence, but attempted to explain the cause and effect of events. Other annalists of this period are Valerius Antias (fl. 50 BC), Licinius Macer (d. 66 BC), Caelius Antipater, and Cornelius Sisenna (d. 67 BC), whose works are lost but for a few fragments.

During the 1st cent. BC a new impulse was given to the writing of poetry, which for a time had made little or no advance, by renewed study of Gk and Alexandrian poetry. There existed in Rome at this time a friendly group of poets united by their common enthusiasm for Gk culture. It included Valerius Catullus (c. 84-c. 54 BC), who adapted to his own purpose and obtained complete mastery over various forms of Gk lyric metres. He wrote

passionate love songs to one Lesbia; an epithalamium to Peleus and Thetis, and another in honour of Manlius and Vinia; a paraphrase of Callimachus's *Coma Berenices*, and the *Attis* in galliambic metre, which is as remarkable as a *tour de force* in metrical form as for its dramatic force and vividness of conception. Other members of this group were Gaius, Helvius, Cinna, and Licinius Macer Calvus, whose works have not come down to us. Very different from any of these, both as a poet and as a man, was Titus Lucretius Carus (c. 95-c. 54 BC), the author of one of the greatest philosophical poems in any language. His *De Natura Rerum* in heroic hexameters expounds the physical structure of the universe according to the teaching of Epicurus. Lucretius d. before the poem was completed, and it is, probably in consequence, very unequal in quality. Lucretius regarded the graces of poetry as subordinate to the truths of his philosophy, so that it is remarkable with what genius he gives poetic form to an unpoetic subject, a subject, moreover, which had not hitherto been treated in the Lat. tongue. Catullus and Lucretius d. within a year of each other, both fore-runners of the great poetic outburst which glorified the age of Augustus.

During the same cent. toward the close of the republican period, Lat. prose reached its zenith. Marcus Terentius Varro (116-27 BC) was a most prolific and versatile writer. He wrote on philology (*De Lingua Latina*), on agriculture (*Rerum Rusticarum Libri*), on antiquity (*Antiquitates Rerum Humanarum et Divinarum*), and philosophy (*Logisticorum Libri*). He also pub. an encyclopaedia of the arts (*Disciplinarum Libri*), and portraits of famous Greeks and Romans (*Imagines*). As a poet and a satirist Varro showed considerable ability. His *Saturae Menippeae*, moral essays written partly in prose and partly in verse, were in imitation of the cynic Menippus of Gadara, and were important as marking the development of the Lat. 'satire.' The treatise on agriculture is the only one of Varro's writings which has been preserved in its entirety and, of the 70 works he is said to have composed, only 2 have come down to us, the other, *De Lingua Latina*, being in a mutilated form.

Marcus Tullius Cicero (106-43 BC) made an indelible impression on the literature as on the hist. of Rome. His literary work may be classified under 3 headings: speeches, philosophical treatises, and letters. Oratory had already attained a high perfection in Rome, and at the time of Cicero's entrance into public life Quintus Hortensius Hortalus (114-50 BC) had no rival in the Forum. Hortensius indulged in the florid mannerisms of Attic rhetoric, and his fame was soon eclipsed by the young orator who aimed at polished and correct composition. Of Cicero's speeches 57 are extant, the most famous being the Verrine and Philippic orations, the 4 speeches delivered against Catiline, *Pro Murena*, *Pro Lege Manilia*, *Pro Archia*, *Pro Sestio*, *Pro Plancio*, and *In Pisonem*.

Of his philosophical treatises the chief are *De Oratore*, *De Republica*, *De Legibus*, *De Natura Deorum*, and *De Officiis*. Cicero's letters, particularly those ad *Atticum* and ad *Familiares*, are, of course, unequal in style and very different from his speeches; but they are of inestimable importance to the student for the vivid picture they give of contemporary Rom. life among the upper classes. As letters they stand the supreme test, and have long been regarded as the model of epistolary style. They reveal the man himself, in his strength and in his weakness. Cicero's great achievement was the creation of a prose style which was adapted to all the needs of life. He was sensitive to the dignity and harmony of Lat. prose and avoided all that was merely florid and declamatory. His style is lucid: reflecting every passing emotion of the writer it is used with consummate ease to convey wit, humour, tenderness, pathos, anger, vehemence, invective, at his will. Thus Cicero made Latin the written vehicle of the civilised world for cents. to come.

Julius Caesar (c. 102-44 BC), a colossal figure in the hist. of Rome, is second to Cicero as a writer of Lat. prose. Caesar wrote personal memoirs of his campaigns in Gaul, *Commentarii de Bello Gallico*, in a clear and simple style, admirably suited to the subject. His *Commentarii de Bello Civili*, 49-48 BC, have also survived, but his other works, which include *De Analogia* and *Anticatores*, have not come down to us. As an historian Caesar is incomparably superior to any of his predecessors, but like them his main object was to narrate the chief events in due order. (Gaius Sallustius Crispus (86-c. 34 BC) was the first Roman to attempt an interpretation of historical events. Modelling his work on that of Thucydides, Sallust attempted to give it an artistic unity. Unfortunately he affected an archaic style in imitation of the elder Cato, and not infrequently sacrificed accuracy for the sake of producing an artistic effect. His works were *Bellum Catalinae*, *Bellum Jugurthinum*, and *Historiae*. The last-named comprised 5 books, but only fragments of it have survived. Of the other prose writers who flourished towards the close of the republican period, brief notice may be given to Cornelius Nepos (c. 99-25 BC), the author of an extensive biographical work entitled *De Viris Illustribus*, and Aulus Hirtius (d. 43 BC), who added an eighth book to Caesar's *Commentarii de Bello Gallico*.)

The Augustan period may be said, roughly speaking, to have begun with the victory of Augustus at Actium in 31 BC. His death in AD 14 marked its close. This period was distinguished by a remarkable output of verse, only to be compared in its fertility with that of the Elizabethan age in England. Publius Vergilius Maro (70-19 BC), in his expression of the Rom. spirit of the national sense of duty and honour, is the most representative poet of his age. His earliest pub., a number of bucolic poems, called the *Eclogues*, which were written in

imitation of the Idylls of Theocritus, estab. his fame. He won a patron in Maecenas, to whom he addressed his *Georgics*. The *Aeneid* was written in imitation of the *Odyssey* and *Iliad*, and was intended to arouse patriotism by a glorification of the origin of the Rom. people in the founding of their city by Romulus, the descendant of Aeneas, and by a comparison between the Trojan hero and the Emperor Augustus. It was unfinished at the death of Virgil, and was pub. at the express command of Augustus under the editorship of Varius Rufus and Plotius Tucca. The *Aeneid* has stood the test of time, and is now ranked with the great epics of the world, with the *Iliad* and the *Odyssey*, with Dante's *Divine Comedy*, and with Milton's *Paradise Lost*.

Quintus Horatius Flaccus (65 BC-AD 8), was, like Virgil, a man of humble origin who, through his literary ability, was admitted to the inner circle of the highest society in Rome. In 35 Horace pub. his first book of satires, dedicated to Maecenas, who in return made him the gift of a small Sabine estate, henceforth his favourite abode. They were written in hexameters, and owed their form to the satires of Lucilius. Horace himself called them *Sermones*, or conversations. Between 30 and 29 BC his second book of *Satires* and his *Epodes* were completed, while the *Odes* (*Carmina*) were pub. in 23 and 13 BC, and the *Epistles* (*Epistulae*) in 20 and 15 BC. As a metrist Horace was unrivalled. His verses are lively and graceful, and so finely polished that they give the effect of spontaneity and ease, but the wings of his Pegasus are clipped so that he never soars to the loftiest heights of poetry. He has an extraordinary gift of words; his style is epigrammatic and terse, 'neat because homely.' His poems give us a very clear picture of contemporary life, and afford delightful reading for their revelations of his personality. Horace also pub. a work of literary criticism, the famous *Epistula ad Pisone*, better known as the *Ars Poetica*, which has exercised a powerful influence on subsequent literary criticism and creation, particularly in France and England. Its immediate aim was to give guidance to young dramatists.

Tragedy was again in vogue, and was being attempted by Aemilius Pollio (76 BC-AD 5), Varius Rufus (74-14 BC), and Augustus himself. The younger generation of poets were, however, chiefly attracted by elegiac poetry, which had been cultivated in the Ionian cities and in Alexandria. The chief representatives of the Rom. elegists are Tibullus, Propertius, and Ovid. Albius Tibullus (54-19 BC) sang poems to his mistress Delia, and lamented her faithlessness in *Nemesis*. His poems are marked by their sincerity; the versification is polished, while the language is simple and homely. The poet, when not in mind of his love, sang the praises of country life. Sextus Propertius (c. 52-c. 16 BC) had no metrical skill, but possessed greater political genius. His chief theme was his mistress Cynthia.

His style is often harsh and cumbersome, but he was stirred by a great, if sensuous, passion, and his poetry at its best is fresh and vigorous and rich in imagery. Publius Ovidius Naso (43 BC-AD 17), unlike the 2 fellow poets of his youth, lived to a ripe old age. His early life was spent in Rome, where his amatory poems—*Amores* addressed to Corinna and *Heroides*, a series of fictitious love letters, the *Ars Amatoria*, and *Remedia Amoris*—as well as the *Metamorphoses*, a collection of stories from Gk and Rom. mythology, and the *Fasti*, a poetic exposition of the Rom. calendar, were produced. In AD 8 he was suddenly banished from Rome for an unknown offence to

prose writers include Vitruvius Pollio, the author of *De Architectura*; Annaeus Seneca, father of the philosopher and author of *Controversiae* and *Suasoriae*; Pompeius Trogus, who wrote the first general hist. in Latin, *Historiae Philippicae*, of which only an epitome by Justin is extant; and Marcus Verrius Flaccus, who wrote the first Lat. lexicon, *De Verborum Significatu*, most of which is lost.

The period immediately succeeding that of Augustus was barren of first-rate literature. The most notable of the prose writers were Vellius Paterculus, who wrote a compendium of Rom. hist., and Valerius Maximus, who made a collection of anecdotes, *Factorum et Dictorum Memorabilium Libri*. The poets included Phaedrus, the fabulist, and Germanicus, the emperor's nephew, who trans. the *Phaenomena* of Aratus into Lat. hexameters. A more prominent figure was Lucius Annaeus Seneca (c. 4 BC-AD 65), the philosopher, whose numerous prose writings included discourses on philosophical and moral subjects, *Quaestiones Naturales*, and letters. The tragedies ascribed to him (*Medea*, *Agamemnon*, *Phaedra*, *Oedipus*, etc.) are the only tragedies in Lat. literature which have come down to us. Seneca's nephew, M. Annaeus Lucanus (AD 39-65), wrote an unfinished epic poem in 10 books on the struggle between Caesar and Pompey, entitled *Pharsalia*. Aulus Persius Flaccus (34-62), the friend of Lucan, left 6 vivacious *Satires*, which still retain their interest.

After the death of Nero (68) a more serious tone was reflected in literature. During the reign of Vespasian the only writers of any note were Plinius Secundus (23-79), Pliny the Elder, whose *Historia Naturalis* is a storehouse of learning, and C. Valerius Flaccus, the author of an unfinished poem, *Argonautica*, who endeavoured to maintain the tradition of the Virgilian style. In the reign of Domitian there began a revival of letters. The most original genius of his age was M. Valerius Martialis (c. 40-104). Martial was the creator of the epigram in its modern sense. His satire invariably had a sting in the tail. He combined a brilliant and caustic wit with the metrical skill of Ovid, but his poems are frequently marred by his fulsome flattery of men in high place and by his vulgar lack of reticence. His contemporary poets were of a secondary order. Silius Italicus (c. 25-101) wrote a lengthy and uninspired poem on the Punic war, and Papinius Statius (45-96) left 2 mythological poems, *Thebais* and the unfinished *Achilleis*, which are brightened here and there by a *purpureus pannus*, and a collection of shorter poems, entitled *Silvae*. The most influential prose writer was Fabius Quintilianus (c. 35-c. 100), whose *Institutio Oratoria* (The Training of an Orator) has remained a standard work on the subject.

A more complete literary revival took place in the reigns of Nerva, Trajan, and Hadrian. The prominent figures of this



VIRGIL

Anderson

Capitoline Museum, Rome.

Augustus, and spent the remainder of his life in exile at Tomis on the Black Sea. There, in his loneliness, he gave expression to his grief in the *Tristia*, *Epistulae ex Ponto*, and *Ibis*.

The prose of the Augustan period is to-day represented by one great writer, Titus Livius (59 BC-AD 17), of Patavium (modern Padua). He began his hist. of Rome, *Ab Urbe Condita* (from the foundation of the city), about 25 BC, and did not publish the first 21 books until after the death of Augustus (AD 14). The hist. was originally in 142 books (only books i-x and xxi-xiv are extant; summaries of the missing books, except cxxxvi and cxxxvii, still exist) and extended from the arrival of Aeneas down to the death of Drusus in 9 BC. The faults of the work are obvious. Livy had no idea of historical research, and his chronology and description of places are often inaccurate. Moreover, he had little grasp of the Rom. law and the Rom. military system. But he is a consummate artist in the arrangement of his material and in the dramatic presentation of his characters. Minor

so-called Silver Age are Tacitus, Juvenal, and the Younger Pliny, who add, 'as it were, a sunset splendour to the literature of Rome.' Publius Cornelius Tacitus (c. 55-120) is known principally by his *Historiae*, extending from Galba to the death of Domitian, and *Annales*, a hist. of the Julian house, beginning with the death of Augustus. He also wrote an account of Germany, and a beautiful memoir of his father-in-law, Agricola, besides a dialogue, *De Oratoribus*, his earliest extant work. Tacitus is a careful, though not an impartial, historian. His deep scorn for the emperors, whom he regards as the greatest enemies of Rome, cannot but make itself felt. The spirit of the age is again prevalent in the work of Decimus Junius Juvenalis (c. 60-c. 140). He has not the good-natured cynicism of Horace. Juvenal's *Satires* paint with pitiless scorn and moral indignation the degraded state of Rom. society. Plinius Caecilius Secundus (c. 62-113), the nephew of Pliny the Elder, gives us in his *Letters* a more pleasing picture of the public, social, and literary life of his time. The only remaining literary men of note who flourished during the reign of Hadrian are Suetonius Tranquillus (c. 70-c. 140), fragments of whose *De Vita Caesarum* have come down to us; Cornelius Fronto (c. 100-c. 166), whose letters to his pupil, Marcus Aurelius, are of some interest; and Aulus Gellius (c. 123-c. 165), the author of *Noctes Atticae*, a series of quotations and excerpts from miscellaneous Gk and Lat. authors.

With Gellius the literature of classical Latin is closed. For many cents. works in Latin were still produced. At the time of the Renaissance European scholars wrote in Latin, believing that only by so doing would their work endure, and since then controversial works as well as theological and scientific treatises have been written in Latin, in order that they may be understood by educ. men of different nationalities. But all such Late Lat. literature is outside the scope of the present sketch.

See separate articles on the various authors, and see also J. W. Mackail, *Latin Literature*, 1895; J. Wight Duff, *Literary History of Rome from the Origins to the Close of the Golden Age*, 1909; *Literary History of Rome in the Silver Age, from Tiberius to Hadrian*, 1930; F. A. Wright and T. A. Sinclair, *A History of Later Latin Literature*, 1931; H. J. Rose, *Handbook of Latin Literature*, 1936.

Latin Union, political monetary union entered into in 1865 by Franco, Belgium, Italy, and Switzerland, by which the amount of silver to be coined yearly was fixed for each member, in order to protect them against the relative appreciation of silver to gold, due to the gold discoveries in Australia and California. A few years later Greece, Serbia, Rumania, and some of the S. Amer. states also joined the union. The unit of coinage was the franc. In 1874 the members agreed to suspend the free coinage of silver owing to the fall in this metal which made it depreciate relatively to gold. See BIMETALLISM.

Latina: 1. Prov. of Italy, in SE. Lazio (q.v.). It is mainly a coastal plain on the Tyrrhenian Sea (q.v.), but has mts in N. and W. There are coastal lagoons, and the prov. contains the Pontine Marshes (q.v.). The prin. tns include L., Terracina, Gaeta, Formia, and Fondi (qq.v.). Area 868 sq. m.; pop. 301,000.

2. It. tn, cap. of the prov. of L., 34 m. SSE. of Rome (q.v.). It is an agric. centre, and was founded in 1932 at the beginning of the work of reclaiming the Pontine Marshes. Pop. (tn) 10,000; (com.) 35,000.

Latini, or Latino, Brunetto (c. 1230-94), It. poet, orator, and grammarian, b. Florence. Here he taught philosophy and grammar, Dante figuring amongst his pupils. He was attached to the Guelph party and held some of the most important offices in the rep. His most noted work is an encyclopaedia entitled *Li Livres dou trésor* (ed. by P. Chabaille, 1863), written in French, which contains extracts and trans. on rhetoric, hist., and philosophy from the classic authors. L. was also the author of a treatise on rhetoric and a poem entitled *Il Tesoretto*. See F. Maggini, *La Retorica di Latini*, 1915; G. B. Zannoni, *Il Tesoretto e il Favolello di ser Brunetto Latini*, 1924; G. Bertoni, *Il Duecento*, 1940.

Latini, some of the most anct inhab. of Italy, forming a league or confederation of 30 states with H.Q. at Alba Longa. These L. are sometimes called 'Prisci L.' to distinguish them from the later subjects of Rome. See LATIUM.

Latinus, son of Faunus and of the nymph Marica, or of Hercules and Fauna, or of Odysseus and Circe, King of Latium and father of Lavinia, the wife of Aeneas. See Virgil, *Aeneid*, vii-xii.

Latitude and Longitude. The lat. of a point on the earth's surface is its angular distance, N. or S., from the equator, measured on the curved surface of the earth, along the meridian of the point in question. It is measured and recorded in degrees (°), min. (′), and sec. (″) (60 sec. = 1 min.; 60 min. = 1 degree). Direct measurement, whether on sea or land, is virtually impossible, so that astronomical observations and calculations are needed. The lat. of a place is the angle between the direction of a plumb-line at the place and the plane of the equator. This is equivalent to the elevation of the celestial pole above the horizon. Geographical lat., as used in maps, is based on the supposition that the earth is an oblate spheroid, of which the compression and the angle which the normal makes with the equator are known. It differs from astronomical lat. only in being corrected for local deviation of plumb-line. The geocentric lat. of a place is the angle which a line from the earth's centre to the place makes with the plane of the equator. The lat. of a celestial object is its distance from the ecliptic measured by the arc of the great circle which passes through the pole of the ecliptic and the object.

The following is an outline of a few

different practical methods used for determining the lat. of a place or ship.

(1) Observation of the stars. This method is one of the easiest and quickest, as star tables are worked out in the *Nautical Almanac* for all stars of the first magnitude in both hemispheres, and for navigation stars of the second and third magnitudes, with the astronomical apparent times at which they cross the observer's meridian on the first day of each month in the year. All stars come to the meridian 4 min. earlier each day. The altitude of the star on the meridian is observed, and the lat. calculated from its known polar distance. (2) Observation of the Pole Star. The true altitude of the star is observed; the local apparent time is obtained and converted into astronomical time. To this is added the sun's right ascension, from the *Nautical Almanac*. Apply this result (minus 24, if necessary) to the table of Pole Star corrections, and then add the degrees and minutes to, or subtract from, the true altitude already determined. (3) Observations of the sun on the meridian. The corrected altitude, which is called the true central altitude, is obtained by the use of the sextant, and subtracted from  $90^\circ$ . The zenith distance, N. or S. as the case may be, is given by the result. The angular distance of the sun from the celestial equator (the corrected declination) is then taken from the *Nautical Almanac*. If both the declination and the zenith distance be the same, N. or S., add them together; if one is N. and the other S., subtract the lesser from the greater and the result is the lat. N. or S. as the case may be. If the sun be obscured by a cloud at the meridian, an observation is taken of it as near as possible to the meridian, and its altitude at the meridian then worked out. The same principles are observed if observations are made of the moon, or a planet. (4) Observation by means of an artificial horizon. This method, which is employed on land, is carried out by the aid of a basin, etc., filled with some reflecting medium such as liquid tar, quicksilver, etc., and protected from the wind to keep it still. The observer should walk backwards, facing the celestial body from which observations are to be made, until its image can be seen in the reflecting medium. The sextant is then brought to bear on the celestial body, the image of which is brought down to coincide with the reflected image. The altitude of the body observed in degrees is half that shown on the sextant, except in those instruments which are specially graduated to make this adjustment automatically. From this and the star's declination the lat. can be calculated.

**Variability of terrestrial latitude.** The lat. of a point on the earth's surface is measured from the equator, which is defined by the condition that its plane is at right angles to the axis of rotation of the earth. Therefore if the points on which this axis intersects the earth, i.e. the poles, are not fixed, the position of the equator will change, and consequently the

lat. It was shown by research about the end of the 19th cent. that such a change, very minute but measurable, does take place; the N. and S. poles wander round in a circle with a radius of approximately 25 ft. The theory regarding the periodicity of the change is briefly as follows. The 14 months' (429 days) term is a result of the fact that the axes of rotation, and of the figure of the earth, do not strictly coincide, but make a small angle (about  $0^\circ.15$  on the average) with each other. If the matter on the surface of the earth were immobile, the result of this non-coincidence would be the revolution of one pole round the other in a circle of radius  $0^\circ.15$  (equal to 15 ft) in a period of 429 days; this is known as the Eulerian motion from the name of the astronomer (Euler) who discovered it. But owing to meteorological causes the motion is subject to ann. change. Apart from the statical causes, that is to say, the changes of position of the deposits of snow and ice on the earth, the causes of this change are dynamical. The statical causes change the position of the pole of figure of the earth, but to an infinitesimal and negligible degree. The dynamic causes are the atmospheric and oceanic currents. If these were invariable the effect would be the Eulerian motion, not exactly round the mean pole of figure of earth, but a point slightly apart. The currents, however, vary annually, and the motion of the pole of rotation varies also. The International Geodetic Association estab. a series of stations round the globe, as nearly as possible at the same lat., to make similar observations, in view of the importance of the fluctuations in position of the poles. The prin. stations are at Carloforte, in Italy; Midzusawa, in Japan; Galkhershburg, in Maryland; and Ukiah, in California, all situated about  $39^\circ 8'$  lat. N.

The length of a minute of arc, measured along the equator (which for all practical purposes is invariable), is known as a geographical mile; but a statute or 'land' mile, being an arbitrary unit introduced by Queen Elizabeth I, is 5280 ft. This statute mile is never used in navigation. The standard nautical or 'sea mile' is, strictly, the length of a minute of arc measured along a meridian, but as this length varies from about 6046 ft at the equator to about 6108 ft at the poles the approximate mean value is therefore taken as 6080 ft as the standard nautical mile for measuring distances at sea. When lat. is expressed in minutes it gives the distance in nautical miles. Thus if the lat. of a place is  $50^\circ 45' \text{ N.}$ , then it is  $(50 \times 60 + 45) = 3045$  nautical miles N. of the equator. Places having the same lat. clearly lie on a 'small circle' (as it is called) the plane of which is parallel to the plane of the equator. This small circle is called a parallel of lat.

The long. of a place on the earth is the angle which the terrestrial meridian from the pole through a point on the earth's surface makes with some standard meridian. As the earth runs through  $360^\circ$  of long. in 24 hrs, if the sun is on the



meridian at any place it will be at the meridian on another place 15° W. of the first 1 hr later. Thus 15° of long. represent 1 hr of difference in apparent time; all methods of determining long. are based on this fact. Formerly each nation took its own standard meridian, but the meridian of Greenwich is now used as the standard. It is important to remember that the astronomical day starts at midnight and the hours are reckoned from mean midnight, which is 0 hr up to 24 hrs later. Thus 9 a.m. 1 Jan. (civil time) is Jan. 1 day 9 hrs (astronomical time), but 3 p.m. 1 Jan. is Jan. 1 day 15 hrs (astronomical time). Greenwich time, which is all-important in the navigation of ships, has customarily been obtained from the set of chronometers which every ship carries; but Greenwich time is now broadcast twice a day from Rugby (England). In astronomy the long. of a celestial body is the distance in degrees of its projection upon the ecliptic from the vernal equinox, counted in the direction W. to E. See also NAVIGATION. See *The Nautical Almanac* and *Inman's Nautical Tables*, 1873; J. Gill, *Textbook on Navigation*, 1898; H. Roper, *Navigation and Nautical Astronomy*, 1908; *Navigation Manual*, vol. II (Admiralty), 1938.

**Latitudinarians** (Lat. *latitudo*, breadth), name applied to a school of Eng. theologians in the 17th cent. who endeavoured to inculcate a more broadminded and liberal spirit into the Eng. Church. They opposed both the High Church party and that of the Dissenters, and strove to minimise the importance attached to particular doctrines and ceremonies. The chief representatives were Hales, Chillingworth, More, and Tillotson. Their movement was closely allied to the philosophical school of the 'Cambridge Platonists' (q.v.), and they may be considered the forerunners of the Broad Church party of the 19th cent. and, in their emphasis on the supremacy of reason, of the 20th-cent. Modernists. See J. Tulloch, *Rational Theology in England in the Seventeenth Century*, 1872.

**Latium:** 1. Country of the Latins (q.v.), div. of anc. Italy, about two-thirds the size of Wales, which extended along the coast of the Tyrrhenian Sea, S.-eastward from the mouth of the Tiber, which formed the inland boundary of the N. half. See **ROME**.

2. Region of Italy, see **LAZIO**.

**Latona**, see **LETO**.

**La Tour, Georges de** (1593-1652), Fr. painter, b. Vic-sur-Seille, of a noble family. He studied art in Italy, later worked at Lunéville in the Lorraine of the Thirty Years War. He refined on the violent lighting effects of Caravaggio in a very personal way, though it is only in recent years that he has come to be recognised as one of the greatest religious painters of the 17th cent. Among his beautiful works are the 'Adoration' (Louvre) and 'St Sebastian mourned by St Irene' (Berlin).

**La Tour, Maurice Quentin de** (1704-1788), Fr. painter, b. St Quentin. He

studied in Paris and devoted himself to pastel, than made fashionable by the Venetian, Rosalba Carriera. He was appointed painter to the king in 1750 and achieved great celebrity by his pastel portraits. Much of his lively portraiture is preserved at his native tn.

**La Tour d'Auvergne, Théophile Malo Corret de** (1743-1800), Fr. captain of grenadiers, b. Carhaix, Brittany. He served with the Republican army in the Pyrenees and Alps, leading with great success his 'Infernal Column.' As he obstinately refused to be promoted, Napoleon bestowed upon him the title 'Le Premier Grenadier de France.' He was killed at Oberhausen, Bavaria. See lives by E. Simond, 1899, and C. le Goffic, 1928.

**La Trappe**, see **TRAPPISTS**.

**Latreille, Pierre André** (1762-1833), Fr. entomologist, b. Brives. In 1786 he became a priest, but spent most of his leisure studying insects. During the revolution he suffered imprisonment, but, arousing interest through his entomological studies, was released. He was appointed to take charge of the insects at the Jardin des Plantes, Paris, and succeeded Lamarck as prof. of zoology. He wrote *Genera crustaceorum et insectorum* (4 vols.), 1806-7, and the portion 'Insects and Crustacea' in G. de Cuvier's *Règne animal*, 1829.

**Latrobe**, par. in Westmoreland co., Pennsylvania, U.S.A., 35 m. ESE. of Pittsburgh. It is a mining and coking dist. and has large collieries, steel, ceramics, and plastics works, saw-mills and lumbering mills, etc. Pop. 11,800.

**Latter Day Saints**, see **MORMON CHURCH**.

**Lattice Leaf**, see **APONOGETON**.

**Lattre de Tassigny, Jean Marie Gabriel de** (1889-1952), Fr. soldier, b. in La Vendée; he was educ. at Poitiers, Paris, and St Cyr, graduating in 1910 and joining the cavalry. He was wounded soon after the outbreak of war in 1914 and, after transfer to the infantry, was awarded 8 citations to the Croix de Guerre. At the end of the war, though only 29, he was in command of a battalion. Between the two world wars he fought in the Rif campaign in Morocco, as well as serving in sev. staff appointments. At the beginning of the war in 1939 he was chief of staff of the Fifth Army, and soon was in command of the 14th Div., until the Fr. surrender. He was in sympathy with the allied cause and, after the invasion of N. Africa, he attempted to create a bridgehead for the hoped-for invasion of S. France, but was captured and sentenced to imprisonment for 10 years. In 1943 he escaped and was rescued by the R.A.F. He later was in command of the Fr. forces in NW. Europe, and had the personal satisfaction of signing on behalf of France the surrender of Germany. In 1948 he was appointed commander-in-chief W. Union until 1950, when he was sent to Indo-China as commander-in-chief. His efforts to save Fr. Far E. ters. eventually failed, but he did not live to see this outcome.

His health deteriorated in the Far E. and he d., after being flown home to France, in Jan. 1952. His was an inspiring personality, and he was a far-sighted strategist and tactician, both militarily and politically. See G. Salisbury-Jones, *So Full a Glory*, 1954.

**La Tuque**, tn in Quebec, Canada, N. of Trois-Rivières on the St Maurice R., popular rendezvous for sportsmen as a taking-off point for fishing and hunting excursions. The prin. industry is pulp and paper. Pop. 11,000.

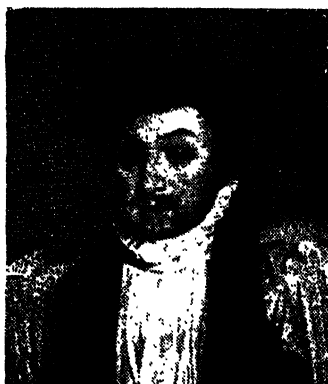
**Latvia** (Latvian *Latvija*), constituent rep. of the U.S.S.R., adjacent to the Baltic Sea, traversed by W. Dvina R. L. is largely lowland, partly covered by mixed forests, with many lakes and marshes and a moderately continental climate. Area 24,600 sq. m.; pop. (1956) 2,330,000, mostly Latvians (63 per cent) and Russians (35 per cent), before the war also Germans. The Latvians are a Baltic-speaking people, mostly Lutherans except the Latgale in the E. who speak a distinct dialect and are Rom. Catholics. There are varied engineering, food, light, and timber industries. Dairy farming, hog-raising, grain, flax, and potato-growing are carried on. The chief tns are Riga (cap.), Daugavpils, Liepaja, Ventspils, and Jelgava. (For *History* see **BALTIC PROVINCES** and **BALTIC STATES**.) During the period of independence, 1918-40, the heavy industries and the seaports of L., having lost the Russian market, greatly declined, while agriculture flourished (butter and bacon being exported to Britain and Germany). Politically independent L. was first a parliamentary rep. with many parties; in 1934 the Prime Minister Ulmanis estab. through a *coup* a dictatorial nationalist regime. See A. Spekke, *Latvia and the Baltic Problem*, 1955, also bibliography for **BALTIC STATES**.

**Lauban**, see **LUBAN**.

**Laube, Heinrich** (1806-84), Ger. novelist and playwright, b. Sprottau, Silesia. In spite of a somewhat interrupted career, his output of dramas and novels was considerable, the most famous being his plays, *Graf Essex*, 1856, and *Montrose* 1859. His romances include *Die Böhmingen*, 1880, and *Der Schatten Wilhelms*, 1883. L. was noted for his ability in stage-craft, and he was director of the Vienna Burgtheater from 1849 to 1867. His collected works were ed. in 50 vols. by H. H. Houben (1910-12). See E. Ziemann, *Laube als Theaterkritiker*, 1934, and M. Dürst, *H. Laube als unser Lehrer*, 1951.

**Laud, William** (1573-1645), prelate, Archbishop of Canterbury, b. Reading; educ. at Reading Free School and St John's College, Oxford, becoming a fellow in 1592; graduated B.A. in 1594, M.A. in 1598, ordained in 1601, graduated D.D. in 1608. He was made Archdeacon of Huntingdon in 1615 and dean of Gloucester in 1617. In 1621 he became prebendary of Westminster and Bishop of St Davids, in 1626 being transferred to the see of Bath, and 2 years later to that of London. In 1630 he was elected

chancellor to the univ. of Oxford, and finally made Archbishop of Canterbury (1633). Throughout Charles I's reign L. was one of the king's most faithful supporters. He instituted rigorous proceedings against all who refused to conform to the Church of England. In 1640 he was impeached for high treason by the Long Parliament, and committed to the Tower (1641), tried in 1644, and executed in 1645. L. set himself the task of representing the Eng. Church as a branch



WILLIAM LAUD

of the Church catholic, in opposition to the Puritan, or left-wing eccles., movement of the times. Of his works the most interesting is his *Diary*, pub. by H. Wharton (1695-1700). See also his biography by his disciple and admirer, Heylin, under the title of *Cyprianus Anglicus*. His works were pub. in 8 vols. (1847-60). See lives by A. Benson, 1887; C. Simkinson, 1894; W. Hutton, 1895; W. L. Mackintosh, 1907; R. P. Coffin, 1930; H. R. Trevor-Roper, 1940.

**Laudanum**, tincture of opium (q.v.), is prepared by macerating opium in dilute spirit, and is a brown-coloured liquid with the characteristic smell of opium. It contains about 1 per cent of morphine. It is administered as a soporific and for relief in gastric troubles. Its use in the case of young infants is dangerous. L. poisoning should be treated by an emetic, for which purpose apomorphine is best. The stomach should be washed out with a salt solution and caffeine introduced by the mouth or in the form of strong coffee per rectum. The patient should be kept awake and walked about if possible. Failing this artificial respiration should be resorted to.

**Lauder, Sir Harry MacLennan** (1870-1950), Scottish comedian and singer, b. Portobello. He worked as mill-boy and miner. His first appearance on the stage was at Arbroath. His first success was in Belfast, Ireland; and his inimitable impersonations of Scottish characters on the

vaudeville stage (especially at the old Tivoli) won him deserved popularity. He wrote both words and music of many of

being some of his best. L. first went to America in 1907 and was a great favourite there. His only son, Capt. John L., was killed in the First World War, 1916. L. was knighted in 1919.

**Lauder, William** (c. 1710-71), Brit. literary forger. Educ. at Edinburgh Univ., where for a time he was an assistant in Latin, he became notorious later for his attempts to detract from Milton's honesty and literary achievements. He wrote an *Essay on Milton's Use and Imitation of the Moderns* in his 'Paradise Lost,' in which he used falsified quotations from various 17th-cent. writers to prove plagiarism on the part of Milton. Dr Douglas exposed L., and Dr Johnson made him sign a retraction of his allegations.

**Lauder, royal bor.** of Berwickshire, Scotland, situated on the R. L., 26 m. SE. of Edinburgh. It was the scene of the brutal murder of Robert Cochrane and 6 others before King James III in 1482. Pop. 600.

**Lauderdale, John Maitland** (1616-82), 2nd Earl and 1st Duke of Maitland, Scottish statesman, b. Lethington (Lennox-love), near Haddington. In 1643 he was named one of the commissioners for the Solemn League and Covenant. In 1645 he succeeded his father as second Earl of L., and by 1647 had gone over to Charles I. In 1651 he followed Charles II to Worcester, where he was taken prisoner and detained for 9 years. He became Scottish secretary of state at the Restoration, and laboured with persistence to bring about the absolute power of the Crown in Church and State. He was a member of the Privy Council and had a seat in the Cabal ministry. In 1672 he was created duke. His administration in Scotland was ruthless and unpopular, but the king resisted all efforts to overthrow his favourite, and L. remained in office until 1680, when he resigned. See life by W. C. Mackenzie, 1923.

**Laudon, Gideon Ernst**, see **LOUDON, BARON VON.**

**Laude, see BREVARI.**

**Laue, Max Theodor Felix von** (1879-), Ger. physicist, b. Pfaffendorf, near Koblenz, prof. at Zurich, Frankfurt, and later at Berlin, 1919-43. As a physicist of high standing he is chiefly known as the pioneer of modern X-ray crystal study. He surmised that the regular arrangement of points in a crystal would serve to produce diffraction effects on incident X-radiation. Success was expected because of the comparable values of point distances in a crystal and the supposed wave-length of X-rays. The experiment performed by Friedrich and Knipping (1912), at his suggestion, vindicated his theory. He was awarded the Nobel prize for physics in 1914. He has pub. *Die Relativitätstheorie*, 1919, *Über die Auffindung der*

*Röntgenstrahlinterferenzen* (Nobel lecture), 1920, *Röntgenstrahleninterferenzen*, 1941, *Materiewellen und ihre Interferenzen*, 1944, *Geschichte der Physik*, 1946, and *Theorie der Supraleitung*, 1947.

**Lauenburg, Duke of, see BISMARCK.**

**Lauenburg.** 1. Former Ger. duchy, on the r. b. of the Elbe between Holstein and Mecklenburg (qq.v.). In 1876 it became part of Schleswig-Holstein (q.v.). The last holder of the dukedom was Bismarck (q.v.). Area 453 sq. m.

2. Ger. tn in the Land of Schleswig-Holstein, at the junction of the Elbe and the Elbe-Trave canal, 66 m. S. by E. of Kiel (q.v.). It was formerly the cap. of the duchy of L., and in the Middle Ages was an important tn on the 'Salt Route.' It is now a zonal crossing-point on the frontier between W. and E. Germany. Pop. 11,000.

**Lauenburg, see LEBORK.**

**Laugharne**, small tn and par. of Carmarthenshire, Wales, on the Taf estuary, with remains of a 12th-cent. castle and a 15-cent. church. The poet Dylan Thomas lived and was buried here. Pop. 1010.

**Laughing Gas**, or Nitrous Oxide, colourless gas with a faintly sweetish taste. It is used as an anaesthetic in minor surgery, particularly dental surgery, and in conjunction with oxygen as a general anaesthetic for major surgery and obstetrics (see ANAESTHESIA; OBSTETRICS; SURGERY). It is non-irritant and non-toxic and induction of anaesthesia and recovery from it are rapid. Unless oxygen or air are administered with L. G. asphyxia occurs.

**Laughing-Jackass, Great Kingfisher**, or Kookaburra, popular name of the species of *Dacelo*, an Australian genus of coraciiform birds belonging to the family Alcedinidae. They are so called because of their



LAUGHING-JACKASS

extraordinary gurgling notes. *D. gigas*, the prin. species, has brown plumage, with a white stripe on each side of the head. It nests in shady forest regions, but will also frequent the vicinity of

houses. The food consists of insects, lizards, snakes, mice, rats, small birds, and

Laughton, Charles (1899- ), Eng. actor, b. Scarborough. He was educ. at Stonyhurst and the Royal Academy of Dramatic Art, and made his first appearance in 1926. Married Elsa Lanchester in 1929. His film roles include *The Private Life of Henry VIII*, 1933, *The Barretts of Wimpole Street*, *Ruggles of Red Gap*, *Mutiny on the 'Bounty'*, and *Rembrandt*. In 1937 he formed his own film company, the Mayflower Pictures Corporation, in partnership with Erich Pommer. See Elsa Lanchester, *Charles Laughton and I*, 1938. 'Launay, Vicomte de' (Delphine Gay), see under GIRARDIN, EMILE DE.

Launce, see SAND LAUNCE.

Launceston: 1. (Anct Dunheved), municipal bor., mkt tn, and administrative centre of Cornwall, England, 26 m. W. of Plymouth. There are ruins of a castle (partly Norman) and a priory. Tin, tungsten, and wolfram are mined in the vicinity. Pop. 4600.

2. Chief city of N. Tasmania, beautifully situated in a valley at a confluence of the N. Esk and S. Esk Rs., which form the estuary of the R. Tamar. It is a thriving up-to-date city, being the second city in the state and is often referred to as the N. cap. It was founded in 1804 by Col. Paterson and named by him after Governor King's native tn in Cornwall, England. The right of self-gov. was granted in 1852. It became a tn in 1858 and was declared a city in 1889. It is well laid out and has all modern utilities, such as electricity, gas, tram and bus services, filtered water supply, sewerage, beautiful parks, good theatres and excellent schools, modern crematorium and cemetery, a museum and art gallery and free library. It has made rapid strides in its industries, which include textile mills, pottery works, concrete and earthenware pipes manuf., tennis rackets and other sporting goods, brewery, timber-mills, railway workshops. L. is the terminus of the prin. steamship lines operating between Tasmania and the mainland of Australia. Agric. produce, fruit (principally apples), minerals, timbers, wool, and woollen goods are the main exports of the port. Pop. (with suburbs) 50,690.

Launch (Malay *lanchar*, quick, speedy), name given to one of the largest size of ship's boats, or to a boat propelled by electricity, internal combustion engine, or steam.

Launch, Motor, see MOTOR BOATS.

Laundries (Lat. *lavenda*, things to be washed; *lavare*, to wash), establs. for the washing of soiled body and table linen. Articles formerly rubbed by the hands of the laundress, or stirred and beaten with a 'dolly' (viz. a wooden rod with a series of spokes at the lower end and a crossbar handle at the upper), are now commonly treated in rotary washing-machines driven by power. The best type of rotary consists of an outer cylinder of metal containing an inner horizontal cylindrical cage, in which the clothes are placed.

Then the doors are closed, the machinery is set in motion, and hot water and cleanser are admitted, the clothes being tumbled on each other in the cleanser and water contained in the outer casing, which enters the cylinder through perforations. The clothes are soaked in alkaline water, washed, boiled, and rinsed, all without removing them from the machine. The linen is then taken from the machine and placed in a hydro-extractor which consists of a perforated metal basket revolving rapidly inside an iron or steel case. The water is thrown out through the perforations in the basket by centrifugal force and the linen is ready to be taken out in about 20 minutes, the drying often being completed in an apartment through which dry air is forced by fans. The ironing machines generally consist of a polished metal roller or polished head heated by gas or steam, working against a felted surface in the form of another roller or flat table; or (Decoudun type) of a felted metal roller rotating against a heated concave bed of polished steel. Hand-ironing is still practised and time is saved by continuously heating the irons by means of gas or electricity. In Great Britain L. are inspected by public health officials, and there are legal provisions for the hours of employment and the workers' conditions. See also DRYING MACHINES and HOME LAUNDRY. See Agnes Jackman and B. Rogers, *Principles of Domestic and Institutional Laundrywork*, 1934; F. E. Jolly and W. Burt, *Laundrywork*, 1934; A. Harvey, *Laundry Chemistry*, 1935.

La Unión (anct Herrería), Sp. tn in the prov. of Murcia, in a dist which has iron, manganese, calamine, sulphur, silver, and lead mines. Pop. 12,000.

Laura (Gk. 'alley,' possibly from Lat. *lura*, mouth of a bag), name given to a group of cells inhabited by ascetics or monks in the deserts of the E. St Charito appears to be the first to have founded a L.

Lauraceae, family of dicotyledonous tropical and sub-tropical evergreen trees and shrubs of over 1000 species. Many are aromatic. Chief genera are *Cinnamomum*, *Laurus*, *Lindera*, *Litsea*, *Ocotea*, *Persea*, *Sassafras*, and *Umbellularia*.

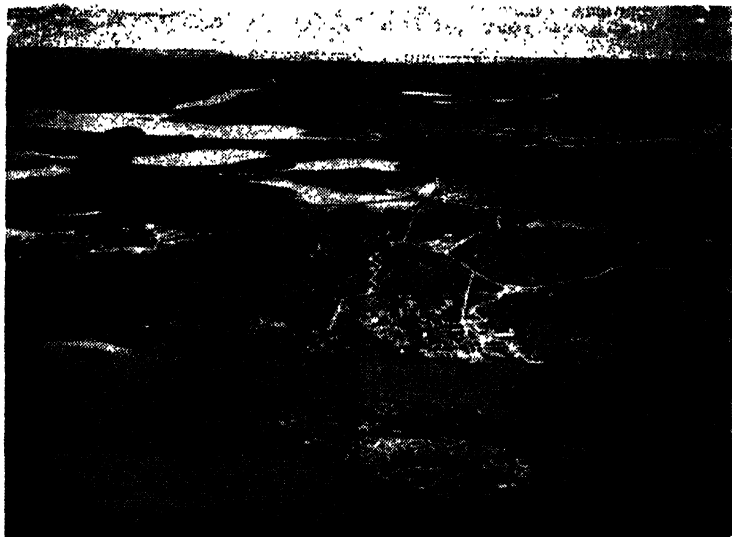
Laurahütte, see SIEMIANOWICE ŚLASKIE.

Laureate, Poet (Lat. *laureatus*, from *laurus*, 'the laurel-tree'), title conferred by letters-patent from the Eng. Crown on the poet attached to the royal household. Its origin is obscure. In anct Greece the laurel wreath was the crown of honour of poets and heroes, and thus the word laureate came to mean in English eminent, generally, though not always, in a literary sense. The medieval kings had poets or minstrels attached to their households who received pensions, though the appointment was not official. In this way Ben Jonson was looked upon as the first L., but the title seems never to have been really conferred upon him, John Dryden being the first Eng. poet to receive the title by letters-patent in 1670. It is interesting in this connection to draw attention

to the position of John Skelton, who, about 1500, seems to have been called P. L., or King's Orator, and insisted on being, so termed. He certainly was awarded by the univs. of Oxford and Cambridge the degree of L., a degree in grammar, including rhetoric and versification at the award of which the graduate was presented with a laurel. In 1493, however, Skelton was granted the distinction of wearing a white and green dress with the name Calliope embroidered on it and he soon after became tutor to the

1878; K. West, *The Laureates of England*, 1896; R. K. Broadus, *The Laureateship*, 1921.

**Laurel, Stan** (real name Arthur Stanley Jefferson) (1890- ), actor and comedian, b. Ulverston; educ. King James School, Bishop Auckland. He appeared in circuses, musicals, dramatic plays, and vaudeville. He began his screen career with Hal Roach in 1917, then produced and directed his own comedies. In 1929 he teamed with Oliver Hardy (q.v.) and formed a comedy partnership in which



National Film Board, Canada

#### LAURENTIAN SHIELD

Yellowknife on the Great Slave Lake, North-west Territories. The sparse coniferous forest, the large areas of bare rocks, the lakes in the glaciated landscape, are all typical of the region.

future Henry VIII (see P. Henderson's ed. of Skelton's works, 1931). From Dryden onwards the post became a regular institution. The complete list of L.s. with their terms of office, is: John Dryden, 1670-89; Thomas Shadwell, 1689-92; Nahum Tate, 1692-1715; Nicholas Rowe, 1715-18; Lawrence Eusden, 1718-30; Colley Cibber, 1730-57; Wm Whitehead, 1757-85; Thomas Warton, 1785-90; Henry James Pye, 1790-1813; Robert Southey, 1813-43; Wm Wordsworth, 1843-50; Alfred Tennyson, 1850-92; Alfred Austin, 1896-1913; Robert Bridges, 1913-30; John Masefield, 1930-. The P. L. generally produces formal and appropriate verses on public and state occasions, though the custom at the present day is not obligatory. See W. Hamilton, *The Poets Laureate of England*,

much of the humour is derived from the contrasting physical appearance of its 2 members, L. being the thin, mournful-looking one whose simplicity infuriated the plump Hardy. Their films include *Berth Marks*, *Pack up your Troubles*, *Babes in Toyland*, *Bonnie Scotland*, *The Bohemian Girl*, *Swiss Miss*, *Blockheads*, *Air Raid Wardens*, *Jitterbugs*, *The Dancing Masters*, and *The Bullfighters*.

**Laurel**, term properly applied to the 2 species of *Laurus*, the chief genus of Lauraceae, but it is also used in a compound name of other plants, e.g. cherry-L. (*Prunus*), spurge-L. (*Daphne*), and sea-side-L. (*Phyllanthus*). *L. nobilis*, the true L. or sweet bay, is to be found round the Mediterranean, and its aromatic leaves are used in condiments; *L. canariensis* is a native of the Canary Is.

**Laurel**, Cherry, or *Prunus laurocerasus*, species of Rosaceae, closely allied to the bird-cherry, almond, and plum. See CHERRY.

**Laurencekirk**, burgh in Kincardineshire, Scotland, 29 m. SSW. of Aberdeen. Pop. 1485.

**Laurencin, Marie** (1885-1956), Fr. painter and graphic artist, b. Paris. She first exhibited there in 1907 and became celebrated in the 1920's for charming stylised figure paintings, the features suggested rather than drawn, carried out in pastel pinks and blues. Her work included drawings, lithographs, mural decorations, and dress design (for Paul Poiret).

**Laurent, Auguste** (1807-53), Fr. chemist, b. near Langres, France. He is chiefly noted for his discoveries with Gerhardt in connection with the homologous series and the theory of types. He was appointed prof. of chem. at Bordeaux in 1838, and warden of the mint, Paris, in 1848. L. did important research work on naphthalene, paraffin, and phenol.

**Laurentia**, see ACCA LARENTIA.

**Laurentian rocks**. Name given to Pre-Cambrian rocks covering an area of over 200,000 sq. m. N. of the St Lawrence in Canada. The L. consists of highly altered sedimentary and volcanic rocks into which much granite has been intruded, the whole now forming a complex of crystalline material once deeply buried within the crust of the earth during a time in which a Pre-Cambrian mt range occupied this area. Erosion has exposed these rocks which give rise to a characteristic landscape and which form a part of the Canadian Shield from which much of the mineral wealth of Canada is drawn.

'**Laurentic**,' auxiliary cruiser which was sunk off the Irish coast by a Ger. submarine or mine on 25 Jan. 1917. She carried a cargo of gold bars to the value of £6,000,000. £4,958,000 worth were recovered.

**Laurentum**, cap. of the anct kingdom of Latium (q.v.). It was the traditional residence of the mythical Latinus, first King of Latium. See Virgil, *Aeneid*, vii-xii.

**Lauria**, It. tn in Basilicata (q.v.), 42 m. S. of Potenza (q.v.). It has textile manufs. Pop. 12,000.

**Lauriacum**, see ENNS.

**Laurier, Sir Henri Charles Wilfrid** (1841-1919), Canadian Liberal statesman; b. St Lin, near Montreal; only son of Carolus L., Catholic and Fr.-Canadian land surveyor. He was educ. at L'Assomption College and McGill Univ. He practised law for a while in Montreal, but ill health obliged his removal to Arthabaska, prov. of Quebec. He was not in favour with the higher clergy of his church, and his weekly paper, *Le Défricheur*, was banned. In 1871 he was elected to the prov. legislature for Drummond and Arthabaska cos., and from 1874 he represented the same constituency in the Dominion Parliament. He was minister for inland revenue in the Mackenzie Cabinet, 1877-8, but had to find another seat on his appointment

at Quebec E., which he represented for the rest of his parl. life. In 1887 he succeeded Edward Blake as Liberal leader. His policy of unlimited reciprocity with the U.S.A. was not successful at the elections of Mar. 1891, just before Sir John Macdonald's death. L. always favoured free trade; and in 1896 he won the elections against the tariff-maintenance policy of Sir Charles Tupper, and became Prime Minister. He remained so until 1911—visiting London and being knighted in 1897. After 1900 his gov.



Public Archives, Ottawa  
SIR WILFRID LAURIER

gave much aid to the Grand Trunk Pacific Railway and the Canadian N. Railway in order to develop the NW. His sending of troops to aid the Brit. in S. Africa was not approved by his native prov., which was better pleased by his resistance, at the Imperial Conference of 1902, to Chamberlain's scheme of unified empire defence. He carried the general elections of 1900 and 1908, being hotly opposed by the nationalist leader Bourassa for 'supporting British jingoism.' His once popular policy of reciprocity with the U.S.A. was defeated at the elections of 1911. During the First World War he declined Sir Robert Borden's invitation to form a coalition. See O. D. Skelton, *Life and Letters of Sir Wilfrid Laurier*, 1922.

**Laurine**, fatty principle of laurel berries; in appearance it is crystalline, and to the taste it is bitter.

**Laurion**, or *Ergasteria*, mining tn in Greece, 25 m. SE. of Athens. It has ant lead and silver mines, reopened in 1864, and iron and manganese are also produced. Pop. 6700.

**Lauriston, Jacques Alexandre Bernard Law, Marquis de** (1768-1828), general and

ultimately marshal of France, b. Pondichery, India. He distinguished himself in the Republican army campaigns, becoming aide-de-camp to Napoleon in 1800. In 1802 Napoleon sent him to England with the ratified treaty of Amiens. He also went on diplomatic missions to Denmark and Russia. He commanded the rearguard in the retreat from Moscow.

**Laurvik**, see **LARVIK**.

**Laus Pompeia**, see **LODI**.

**Lausanne**, cap. of the canton of Vaud, Switzerland, on the N. shore of Lake Geneva. It has a very fine cathedral (Protestant since the Reformation) dating back to the 13th cent., the restoration of which was completed in 1926, a 15th-cent. castle, a univ., a museum of natural hist., and an art gallery. L. is the seat of the Federal Tribunal. Voltaire, Byron, and Dickens paid extended visits to the tn, and Gibbon wrote part of his *Decline and Fall of the Roman Empire* there. Main industries are machinery, tobacco, and chocolate, and the tn is an important commercial and main-line railway centre of W. Switzerland. Pop. (1957) 117,350, Fr.-speaking.

**Lausanne, Treaty of** (1923), officially terminated the state of war between the Allies and Turkey by bringing to an end the difficulties outstanding between the Allies and the Angora Turks. Though Turkey surrendered unconditionally to the Allies in Oct. 1918, the Angora Turks declined to accept the treaty of Sèvres, which mandated Smyrna to Greece, and made war on Greece (see **GRÆCO-TURKISH WAR**). After the evacuation of Smyrna a convention was signed between the Allies and Kemal Atatürk at Mudania, thereby averting further war (Oct. 1922). The Lausanne Conference between the Allies and the Kemalists began 20 Nov. 1922, the chief Brit. delegate being Lord Curzon, who was then foreign secretary, and dragged on to April 1923. The treaty, which was signed on 24 July 1923, ceded E. Thrace (including Adrianople) to Turkey, but took away from Turkey Palestine and Iraq, which were mandated to Great Britain, Syria, which was mandated to France, and also the rest of Arabia. The treaty left the N. frontier of Mesopotamia to be settled by later negotiation or, failing agreement, by reference to the League of Nations. This matter was eventually settled by a tripartite treaty between Great Britain, Turkey, and Iraq, signed at Ankara in June 1925. It also confirmed It. possession of the Dodecanese (q.v.) and Gk possession of is., except Imbros and Tenedos, formerly held by Turkey in the Aegean. All Turkish rights over Egypt, the Sudan, and Cyprus were surrendered. But the most vital clause was that which concerned the straits. This clause guaranteed the freedom of the straits: zones on each side of the Bosphorus and the Sea of Marmora were demilitarised by special convention, and rules were laid down for preserving the freedom of the straits in both peace and war, such rules to be applied by a mixed commission of the

League of Nations. But by the Montreux Convention, 1936, Turkey regained the right to fortify the straits. See H. W. V. Temperley, *History of the Peace Conference of Paris* (vol. vi), 1924; Earl of Ronaldshay, *Life of Lord Curzon*, 1928-9; H. Nicolson, *Curzon: the Last Phase*, 1919-26, 1934.

**Lausitz**, see **LUSATIA**.

**Lauterbrunnen**, vil. and resort in the Bernese Oberland, Switzerland, 6 m. SE. of Interlaken. It is situated in a picturesque valley and has numerous waterfalls, the most famous of which is the Staubbach (980 ft.). A cog-railway connects L. with Grindelwald, over the Kleine Scheidegg pass, and a funicular electric railway ascends to Mürren. Pop. 3000.

**Lauson**, city on the S. shore of the St Lawrence R., near Quebec city, Canada. Shipbuilding and repairing are the prin. industries. Pop. 10,000.

**Lava**, substance which is emitted in a liquid state from the crater of a volcano. L.s are divided into different classes, the quality of the L. depending on the amount of silica which it contains. Those which are known as 'basic' contain less silica than the others, and flow for much greater distances, as they are less viscous. The exterior or crust of a stream of L. cools quickly when exposed to the air, and the molten L. which is underneath often breaks through this crust and continues its course, thus disturbing the evenness of the original surface and forming loose blocks of material.

**Laval, Gilles de**, see **RETZ**.

**Laval, Pierre** (1883-1945), Fr. politician, b. Châteldon, near Vichy, son of a butcher of gipsy extraction. L. became a school teacher in Auvergne, but having gained a footing in trade union circles as a militant Socialist he went to Paris and became a lawyer. In 1908 he was elected mayor of Aubervilliers. In 1914 he was elected to the Chamber of Deputies. He joined his regiment at the front on the outbreak of the First World War, but was on the suspects list till 1918. He was defeated in the 1919 elections, but elected again 5 years later. His subsequent progress was rapid. In 1925 he was minister of public works under Painlevé, and he sat as Independent senator for the Seine dept from 1926. L. was Prime Minister in 1930, 1931, 1932, 1935, and 1936, and foreign minister for a time in 1934, 1935, and 1936. Concurrently with this accession of power his private fortune grew enormously and he bought the historic castle of Châteldon, overlooking the tiny cottage where he was born, and, as his wealth increased, his early left-wing ideals were apparently forgotten. He was responsible, with Hoare, for the abortive Hoare-L. plan for satisfying Mussolini's Ethiopian ambitions in 1935, and in 1936 he resigned to give way to Blum after the Left victory at the elections in that year. When the Second World War came, as easy Ger. conquests multiplied, he became less discreet and began to sound various politicians on the feasibility of forming a Pétain gov. to organise a Lat. bloc with Mussolini and Franco and thereby leave

Britain to face Germany single-handed. When France collapsed L. was at once called into Pétain's Cabinet as minister of state and deputy prime minister, was nominated Pétain's successor, and appointed foreign minister. Pétain, however, disliked L. personally and was suspicious of his ambitions, and in Dec. 1940 L. was suddenly dismissed and arrested. But the Germans secured his release and L. fled from Vichy France to Paris. In Aug. 1941 he and Déat, the Fascist leader, were shot at during a military ceremony at Versailles and L. was seriously injured. Pétain resisted Ger. efforts to secure L.'s reinstatement, but in April 1942 he had to yield to a Ger. ultimatum and the Vichy Gov. was reconstituted with L. at its head. In Nov. 1942 Pétain signed constitutional Acts giving L. power to make laws and issue decrees on his signature alone. This made L. virtual dictator of France, under Ger. supervision. Yet it is clear, that though the free world considers L. the arch-collaborator, the Germans frequently considered his collaboration too half-hearted; he had to be on constant guard against attempts to supplant him. After 1943 L. played a leading part in the deportation of Frenchmen to work in Germany, a role probably forced on him by the Germans and by the growing power of Fr. resistance; he was not naturally a cruel man, but as the last resort was willing to act in any way which would safeguard his personal position. In 1944 he went to Germany, and was soon afterwards sentenced to death in his absence by a Marseilles court of justice. In 1945 he flew to Spain, but later surrendered himself into Fr. hands. He was again put on trial, this time in the high court in Paris, before 3 judges and 24 assessors, and found guilty on all the main charges preferred against him—conspiracy against the security of the State, collaboration with the enemy, and armed action against the Fr. resistance movement—and condemned to death (9 Oct. 1945). On the morning of the day of his execution he tried to take his own life by poison but was not successful, and soon afterwards met his fate before a firing squad (15 Oct.), dying with calm and courage. In a detailed defence of his actions, which he left to be pub. after his death, he denied that he had ever hated Britain, declared that the policy of collaboration was engineered at Montoire between Hitler and Pétain, and averred that in 1941 Darlan, then in power, went to Hitler to confer on an extensive scheme for a real alliance with Germany. See *The Unpublished Diary of Pierre Laval*, 1948. See also A. Werth, *France, 1940-1945*, 1955, and P. Farmer, *Vichy Political Dilemma*, 1955.

**Laval**, cap. of dept. of Mayenne, France, on the Mayenne, 45 m. E. of Rennes. It is the seat of a bishopric and has numerous historic buildings. The old feudal city is on the r. b. of the river, and the new tn on the l. b. There are metal industries and linen-mills. Pop. 32,500.

**Laval-Montmorency**, François Xavier de (1622-1708), Fr.-Canadian bishop, native

of Laval. Ordained priest in 1647, he became archdeacon of Evreux, France. He went (1659) to Canada as vicar apostolic of New France and titular Bishop of Petraea. His authority being contested by the archdeacon of Rouen, the Pope made L.-M. first Bishop of Quebec (1674) and immediately responsible to Rome. A great educationalist, L.-M. founded the seminary of Quebec (1663), a junior seminary (1668), and an industrial school (1678). He resigned in 1688, but returned to Canada to work under his successor. Laval Univ. (Quebec) is named after him.

**Laval University**, Fr. Catholic institution founded by the Seminary of Quebec in 1852 under royal charter; a papal bull extended its constitution in 1876. It is under the general supervision of the Archbishop of Quebec and a council of bishops of the prov. of Quebec. The Univ. Council nominates profs. other than those in the faculties of theology, canon law, and philosophy. The usual language of instruction is French. There are faculties of agriculture, arts, commerce, forestry and surveying, law, letters, medicine, philosophy, sciences and engineering, social sciences, and theology. Graduate studies, education, nursing, social work, and fisheries are among some of the subjects studied in special schools of the univ. There are in all some 8000 students. Bachelor's, master's, and doctor's degrees are granted. The univ. controls the programmes and examinations of many secondary type schools most of which are in the provs. of Quebec and Montreal.

**Lavalleja**, inland dept. of Uruguay (cap. Minas). It is chiefly an agric. region, producing wheat, maize, linseed, oats, and raising cattle. Area 4819 sq. m.; pop. 118,000.

**La Vallière**, Louise Françoise de Lebaume Le Blanc, Duchesse de (1644-1710), mistress of Louis XIV, to whom she bore 4 children, and who made her a duchess, 1677. When Athénais de Montespan became a royal favourite La V. retired to a Carmelite nunnery in Paris, where she lived the remaining 30 years of her life. She pub. *Réflexions sur la miséricorde de Dieu par une dame pénitente*, 1680. See G. Basset d'Auriac, *Les Deux Pénitentes de Louise de la Vallière*, 1924; also lives by A. Houssaye, 1860; J. Lair, 1891 (Eng. trans., 1908); J. Cladel, 1912.

**Lavater**, Johann Kaspar (1741-1801), Swiss Protestant and writer, b. Zürich; he took orders in the Protestant Church in 1762 and was appointed to the church of St Peter. He had before this, however, written a book of Swiss poems called *Schweizerlieder*, 1767. His other works are *Aussichten in die Ewigkeit*, 1768-78, and *Physiognomische Fragmente zur Beförderung der Menschenkenntnis und Menschenliebe*, 1775-8, the latter being his great work on physiognomy. A selection of his works was ed. in 1943 by E. Stähelin. See studies by O. Guinaudeau, 1924; C. Jenentzky, 1928; O. Farnet, 1938; T. Hasler, 1942.



**Lavour**, Fr. tn in the dept of Tarn, on the Agout. It has a fine Gothic church, formerly a cathedral. Silk is manuf. Pop. 5900.

**La Vendée**, see **VENDÉE**, LA.

**Lavender**, name given to the various species of the labiate genus *Lavandula*, which consists of hoary, narrow-leaved, fragrant bushes, inhabiting S. Europe, the Canaries, Barbary, Egypt, Persia, and W. India. The flowers are generally blue and yield much honey to bees. *L. vera*, the common L., and *L. spica*, the spike L., are the two best known species, and yield the oil used in the manuf. of L. water.



LAVENDER

**Lavenham**, vil. of Suffolk, England, 10 m. S. of Bury St Edmunds. In the 16th cent. L. was a noted woollen tn, and it is perhaps the finest example of such a tn still existing. Its par. church is an excellent example of the late Perpendicular style; there are streets of timbered houses and a pre-16th-cent. guild hall now restored. Pop. 1451.

**Laver**, see **SEAWEED**.

**Laveran**, Charles Louis Alphonse (1845-1922), Fr. physician, b. Paris and studied medicine there and at Strasburg, at which latter he qualified in 1867. He entered the army, serving during the Franco-Prussian war. In 1874 he began to teach at Val-de-Grâce military medical school. From 1878 to 1883 he served with the army in Algeria. On 6 Nov. 1880 he first saw the malaria parasite and at once grasped its significance. This great discovery was at first received with scepticism. L. was professor of military hygiene at Val-de-Grâce from 1884 to 1894. He resigned from the army in 1896 to continue his scientific work at the Pasteur Institute, Paris. Besides his research on malaria he made important contributions to the knowledge of trypanosomiasis, leishmaniasis, and other parasitic diseases. His literary output was prolific; his books include *Traité des Maladies et Epidémies des Armées*, 1875,

*Traité des Fièvres Palustres*, 1884, *Du Paludisme*, 1891, and *Trypanosomes et Trypanosomiasis* (with F. Ménil), 1904. In all he contributed over 600 articles and books to medical literature.

**La Vérendrye**, Pierre Gaultier de (1685-1749), Canadian explorer, b. Three Rivers. Serving as a soldier he was wounded at Malplaquet. Prompted by an Indian's tale, he set out for the W. with 3 sons in 1731, starting from Montreal and Lake Superior. He reached Lake Winnipeg, but had to return to Montreal to be examined by his financial helpers. He returned to establish Fort Rouge (Winnipeg) and Fort La Reine (Portage la Prairie). In the winter of 1738 he set out S. westwards from Fort la Reine and reached the Missouri R., suffering great hardships on the return journey. Two of his sons then began exploring alone, and on 1 Jan. 1743 sighted the Rocky Mts. To La V. and his sons is due the credit for opening up the great W. plains. See A. C. Laut, *Pailfinders of the West*, 1904, and G. Dugas, *The Canadian West, and its Discovery by De La Vérendrye* (trans.), 1905.

**Lavery**, Sir John (1857-1941), portrait painter, native of Belfast, Ireland. Studied in Paris and, about 1881, became acquainted with Sir James Guthrie and the 'Glasgow School' of artists. He rapidly made a name for himself and received many official commissions; but it was in his smaller studies of interiors with figures, such as those of 'The House of Lords' and 'The House of Commons,' and impressions of jockeys in the weighing-room, that he showed his more characteristic powers. Among his best portraits are those of Lord Melchett and Mr Cunningham Grahame and (for the National Gallery of Ireland) of Arthur Griffith and Michael Collins. In 1883 his 'Two Fishers' was exhibited in the New Salon, and 'The Tennis Party' (Munich Pinakothek) at the Royal Academy, 1887. Among his other best known works are 'Mother and Son,' 'White Feather,' 'A Lady in Black,' 'The Visit of Queen Victoria to the Glasgow Exhibition' (1888) is hung in the Glasgow Gallery. He was commissioned by the Free State (now Rep. of Ireland) Gov. to design the first currency notes in that country. Knighted, 1918. R.A., 1921. He wrote *The Life of a Painter* (autobiography), 1940. See W. S. Sparrow, *John Lavery and his World*, 1911.

**La Villemarqué**, Théodore Claude Henri Hersart, Vicomte de (1815-95), Fr. scholar, b. Quimperlé, Bretagne. One of his earliest works was a collection of Breton songs, *Barzaz Breiz*, 1839. Among his other works are *Contes populaires des anciens Bretons*, 1842, *Poèmes des bardes bretons*, 1850, *Poèmes bretons du moyen-âge*, 1850. He also ed. *Dictionnaire français-breton*, 1857.

**Lavin**, Mary (1912- ), Amer. novelist, b. Massachusetts. Educ. in Ireland at the National Univ., she settled in Meath. In 1943 the Tait Black Memorial Prize was awarded to her book of short stories,

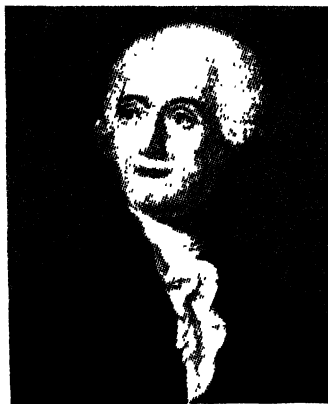
*Tales from Bective Bridge*. Later collections of stories are *The Long Ago*, 1944, *The Becker Wives*, 1946, and *A Single Lady*, 1951. *The House in Clewe Street*, 1945, and *Mary O'Grady*, 1950, are novels. In 1947 she married Wm Walsh, a Dublin lawyer.

**Lavinium**, old Rom. tn of Latium (q.v.), 16 m. SE. of Rome. It was supposed to have been founded by Aeneas and named after his wife Lavinia.

**Lavisse**, Ernest (1842-1922), Fr. historian. He was made prof. of modern hist. at the Sorbonne in 1888 and elected a member of the Fr. Academy in 1892. From 1904 to 1919 he was director of the *École normale supérieure*. Among his works are *Études sur l'histoire de la Prusse*, 1879, *Trois empereurs d'Allemagne*, 1888, *La Jeunesse du grand Frédéric*, 1891, *Histoire de France depuis les origines jusqu'à la Révolution*, 1900, and in collaboration with A. N. Rambaud, *Histoire générale du VI<sup>e</sup> siècle à nos jours*, 1893-1901.

**Lavoisier**, Antoine Laurent (1743-94), Fr. chemist. He was b. in Paris of a wealthy family, his father being an advocate and his mother the daughter of an advocate; but he was brought up by his maternal grandmother. He was educ. at the Mazarin College, then notable for its excellent teaching in science. At first he was most drawn to mathematics and meteorology and assisted his geological teacher, Guettard, in a survey for a geological map of France. Later he carried out much work for the Fr. Gov. In 1768 he became a member of the Royal Academy of Science, though he had not yet done any scientific work of real importance, and shortly afterwards he was appointed one of the *fermiers-général*s and commissioner of powder to the Fr. Gov. His chief theories and discoveries relate to the nature of the atmosphere and the process of combustion; he showed that combustion was the union of the burning substance with atmospheric oxygen. L. also discovered the composition of water independently, or partly so, of Cavendish and Watt, and to him is due in large measure the modern system of chemical nomenclature. In his famous work, *Traité élémentaire de chimie*, 1789, he gave chem. its modern form, and indeed his great services to chem. have tended to obscure his achievements in other fields; for living in the age of the Encyclopédistes his natural ambition and curiosity took him into many fields of inquiry, and the 6 great vols. of his writings, collected under the auspices of the Royal Academy of Science between 1864 and 1893, are largely devoted to his many investigations in applied science; and the fact of their pub. by the academy illustrates the prevalent and doubtless sound idea that it was a matter of public importance to have existing knowledge summarised and rationalised for the public benefit. In his researches in chem. he soon hit on combustion as the outstanding problem to be solved; and the explanation that combustion and calcination consist in the

union of the combustible or metal with oxygen, though strongly opposed by older chemists, soon gained acceptance after the pub. of J.'s *Traité* and no less rapidly in Germany, the home of the old phlogiston doctrine. L. explains the appearance of heat and light, or fire, in combustion, by assuming the existence of imponderable elements, caloric and light, which bore a strong resemblance to the old phlogiston. Chemists had universally accepted a theory that things burn because they contain an inflammable principle called phlogiston. L.'s experiments showed him that phosphorus and sulphur increased in weight during burning. The



ANTOINE LAURENT LAVOISIER  
Engraving after a painting by  
J. L. David.

experiments of Cavendish in the formation of water from hydrogen and oxygen (pub. 1784) enabled L. to complete his so-called anti-phlogistic theory and played an important part in leading to its acceptance. Cavendish's discovery in 1783 that water was formed when inflammable air from metals was burnt with oxygen gave L. the clue he needed and he named the inflammable air hydrogen, or water-producer. Thus if the vital clue came from England—from Priestley and Cavendish in particular—it was L. who interpreted their work and grasped its wider implications. L.'s surmise that the earths are oxides of unknown metals received striking confirmation in Davy's isolation of the alkali and alkaline earth metals in 1807-8. During the revolution L. continued to work for the State, but he was soon attacked by Marat, whose theory of fire had been unfavourably criticised by L. In the end no more could be charged against him than that he had, as a *fermier*, adulterated tobacco with water, and on that petty accusation the great Frenchman was condemned and, on 8 May 1794, guillotined. In 1795 his property,

previously confiscated, was restored to Mme L.—it was in 1791 that he married the beautiful and accomplished Marie Anne Paulze, daughter of a member of the *ferme* and then only 14. She helped him in his researches and the illustrations in his *Travé* are from her drawings. Some time after his death she married the Amer. scientist, Benjamin Rumford, but this second marriage proved unhappy. See lives by E. Grimaux, 1895; J. A. Cochrane, 1931; D. McKie, 1938.

**Lavoro, Terra di**, see CASERTA.

**Lavrov, Pëtr Lavrovich** (1823–1900), Russian thinker and revolutionary, a leader of the Populists (see POPULISM). He was a prof. of mathematics. L. contributed to liberal periodicals on philosophy, sociology, and anthropology, and was especially interested in ethics and the hist. of thought. He ed. the *Encyclopaedic Dictionary*, 1861–4, was banished in 1866, emigrated in 1870, and till 1872 ed. the revolutionary jour. *Forward*; he was a member of the First International (q.v.). In his famous *Historical Letters*, 1868–9, L. developed a philosophy of hist. which largely dominated the subsequent Populist thought. See *Lettres historiques*, Paris, 1903.

**Law, Andrew Bonar** (1858–1923), statesman; b. New Brunswick, Canada; son of a Presbyterian minister. He was educ. at New Brunswick; Gilbertfield School, Hamilton; and the High School, Glasgow. L. then entered an iron merchant's business in Glasgow. In 1900 he retired from business and entered Parliament as Unionist member for the Blackfriars div. of Glasgow. From the first he was an outstanding speaker, especially on economic affairs. In 1902 he became parl. secretary to the board of trade. He was the most enthusiastic supporter of 'Tariff Reform' left in the ministry when Joseph Chamberlain resigned. Defeated in Glasgow, 1906, he was returned almost immediately afterwards for Dulwich. At the second general election of 1910 he deserted Dulwich and lost at NW. Manchester. From 1911 till 1918 he represented Bootle. On Balfour's resignation of the Conservative leadership, 1911, L. was selected to succeed him as the only means of reconciling the supporters of Sir Walter Long with those of Austen Chamberlain. Before the First World War he was one of those who advocated resistance by Ulster to Irish Home Rule. In 1915 he joined Asquith's War Coalition as colonial secretary, and he carried the Compulsory Service Bill through the Commons. He originated and took part in the Economic Conference of the Allies, 1916, and he supported Lloyd George for the premiership. In 1916–18 he was chancellor of the exchequer, member of the War Cabinet, and leader of the Commons. In 1917 he announced the gov's acceptance of the principle of imperial preference. He signed the treaty of Versailles, 1919, and had much to do with the shaping of the last Irish Home Rule Act (which never operated). From 1918 until his death he represented Central Glasgow.

Lord privy seal, 1919–21, when he resigned for health reasons. He appeared to make a good recovery, and when the Coalition fell in Oct. 1922 L. became Prime Minister, winning the general election on a slogan of 'tranquillity.' Failing health caused him to resign 20 May following, and he d. 5 months later. See life by R. Blake, 1955.

**Law, Edmund** (1703–87), Bishop of Carlisle, b. Carlisle, Lancs, and educ. there and at Kendal. Graduated at St John's College, Cambridge. In 1743 he became archdeacon of Carlisle, and returned to Cambridge in 1756 as master of Peterhouse; he was appointed librarian to the univ. in 1760 and Knightbridge prof. of moral philosophy in 1764. He became Bishop of Carlisle in 1768 and was an earnest student of Locke, whose works he ed. in 1777. His own most important philosophical work is *Considerations on the State of the World with regard to the Theory of Religion*, 1745.

**Law, Edward**, see ELLENBOROUGH.

**Law, John** (1671–1729), Scottish financier, originator of the Mississippi scheme, b. Edinburgh. Having killed a man in a duel, he fled to Holland in 1697, where he studied banking. After a few years returned to Scotland and in 1700 unsuccessfully proposed to the Scottish Parliament a system of paper currency. In 1716, under the patronage of Orleans, the Fr. regent, he set up a private bank in Paris, and soon afterwards persuaded the regent to found a national bank, which issued banknotes and raised the credit of the gov. His Mississippi scheme, which was at first enormously popular, proved a disastrous failure, and L. fled from Paris in 1720 and d. in poverty at Venice. He wrote *Money and Trade*, 1705, and *Lettres sur le nouveau système des finances*, 1720. See A. W. Wytton-Glynn, *John Law of Lauriston*, 1907; G. Oudard, *La Très Curieuse Vie de Law*, 1927; H. Montgomery Hyde, *The Amazing Story of John Law*, 1948.

**Law, William** (1686–1761), divine, b. Kingscliffe, Northants. In 1711 he was ordained and elected fellow of Emmanuel College, Cambridge; but on the accession of George I, being unable to take the oath of allegiance, he forfeited his fellowship, and became a non-juror. From about 1737 until 1737 he was tutor in the household of Edward Gibbon, father of the historian. In the latter year L. retired to Kingscliffe. His controversial writings include *Three Letters to the Bishop of Bangor*, 1711, *Remarks on Mandeville's Fable of the Bees*, 1723 (repub. by F. D. Maurice, 1844), and *Case of Reason*, 1732, written in reply to Tindal's *Christianity as old as the Creation*. His *Treatise of Christian Perfection*, 1726, and the *Serious Call to a Devout and Holy Life*, 1729, which had a profound influence on the leaders of the Evangelical Revival, still remain the most popular of L.'s works. The influence of Jacob Boehme is seen in the mysticism of his later writings, *The Spirit of Prayer*, 1749, 1752, *The Way to Divine Knowledge*, 1752, and *The*

*Spirit of Love*, 1752, 1754. An ed. of his works was pub. in 9 vols., 1772-6, and an ed. by G. B. Morgan in 1893. See C. Walton, *Notes and Materials for a Complete Biography of W. Law*, 1848; J. H. Overton, *William Law, Non-juror and Mystic*, 1881; A. Whyte, *Characters and Characteristics of William Law*, 1892; K. Minkner, *Die Stufenfolge des mystischen Erlebnisses bei William Law*, 1939; N. Tallen, *William Law: a Neglected Master of English Prose*, 1948.

**Law.** Among the many definitions of L. is that of Prof. Holland, namely 'Law in general is the sum total of those general rules of action as are enforced by a sovereign political authority.' This definition is particularly relevant to a mature political society. Even primitive communities are ordered by rules which are imposed by the authority of a tribal chief or council or accepted by common consent. The sources of these rules are various, written and unwritten.

Rom. lawyers recognised a distinction between 'positive' L. (i.e. settled by men for their practical needs) and 'natural' L., which was a conception of an ideal system. Rom. L. is admirably set out in the *Institutes* of Justinian. Many continental legal systems are inspired by Rom. L. and its influence is to be found in Scots L. The Eng. legal system has its origins in customary L.s which have been developed by judicial precedents. Although even in medieval times Eng. jurists produced scholarly treatises on L., Eng. L. has never been set out in a code such as the Code Napoléon or formally summarised in the periodical 'Restatements' produced by Amer. jurists.

The prin. sources of Eng. L. are legislation and the principles worked out in decided cases in the courts ('judge-made' L.).

(a) **Legislation.** This is the body of statute L. enacted by the legislature. It also includes subordinate legislation by Gov. depts and other public bodies on matters delegated to them by statute (see LEGISLATION).

(b) **Judge-made law.** The legal principles evolved from precedents in decided cases are known as the Common L. In order to mitigate the hardship sometimes inflicted by the strict application of the Common L. a system known as Equity was evolved. The decisions of courts of equity have now hardened into a system of judicial precedent but still provide equitable remedies which would not otherwise have been available at Common L. (see EQUITY).

There are sev. classifications of L. The most important is probably its div. into Private and Public L. The former is concerned with rights and obligations under the civil as opposed to the criminal L., arising out of such matters as property, contracts, torts or actionable wrongs, and 'status' (e.g. the L. of husband and wife, infants, lunatics, and bankrupts). Public L. may be subdivided into criminal, constitutional, and administrative. Criminal L. deals with infringements of the L.

which are punishable by fine, imprisonment, or other judicial sanction. Constitutional L. is concerned with the analysis of the legislative, executive, and judicial elements of the gov. of a country and the rights and obligations of the individual vis-à-vis the State (see CONSTITUTIONAL LAW). Administrative L. is an expanding body of L. regulating the executive, quasi-legislative, and quasi-judicial functions of public authorities (see ADMINISTRATIVE LAW).

L. may also be classified as substantive or adjectival L. Substantive L. defines legal rights and duties. Adjectival L. is concerned with the procedural machinery which gives effect to those rights and duties. For example, the legal rules determining nuisance, negligence, or contract are in the province of substantive L. The court procedure governing injunctions to restrain the commission of nuisances, action for damages for negligence, and decrees for specific performance of contract belongs to adjectival L.

Most questions which arise for determination in a L. court are questions of L. or of fact, meaning by the former a question as to what is the L. on a particular point; questions of fact, where there is a jury, are for its decision; questions of L. are for the court to decide. See also INTERNATIONAL LAW; JURISPRUDENCE; JUS GENTIUM.

See J. Bentham, *Traité de législation*, 1830; J. Austin, *Jurisprudence*, 1869; T. E. Holland, *Jurisprudence*, 1880; I. Kant, *Philosophy of Law*, 1887; Sir F. Pollock and E. Maitland, *History of English Law*, 1895; Sir F. Pollock, *Essays in the Law*, 1920; W. S. Holdsworth, *History of English Law*, 1922-38; T. F. T. Plucknett, *Concise History of Common Law*, 1936; Sir H. Slessor, *The Administration of the Law*, 1949; K. Renner, *The Institutions of Private Law and their Social Functions*, 1949.

**Law, Degrees in,** see LEGAL EDUCATION.

**Law Courts,** see COUNTY COURTS; COURT OF SESSION; ROYAL COURTS OF JUSTICE; SUPREME COURT OF JUDICATURE; etc.

**Law Lords,** those members of the Brit. House of Lords who act as lords of appeal. The body comprises 9 lords of appeal in ordinary, with a salary of £2000 a year, either former judges or law officers of the Crown. To these are joined the lord chancellor and any peers who have formerly held high judicial office or have been lord chancellor. The 9 ordinary lords are made peers for life on appointment. See WENSLEYDALE PERRAGE.

**Law Merchant.** The L. M., or *Lex mercatoria*, was developed in the Rom. Empire and was that part of the Law of Nations (see JUS GENTIUM) which regulated the affairs of commerce. In England it was largely rooted in mercantile customs and administered by special courts outside the jurisdiction of the common law. Under the celebrated Chief Justice Lord Mansfield (q.v.) the special courts gave place to the common

law courts, and the floating customs of the L. M. were crystallised into a system and incorporated into the body of the common law. Eng. mercantile law (the term L. M. is never used at the present day) no longer pays any regard to international customs, relying solely on Eng. trade usage. Any fresh custom which satisfies certain conditions will become part of the law, e.g. certain instruments may by custom become negotiable (see CUSTOMS and MERCANTILE LAW).

**Law Reports** are to be distinguished from the reports of legal proceedings in newspapers. L. R. are concisely written accounts of the arguments and judgments in such cases before the courts as involve in their decision some new legal principle or the novel application or the extension or limitation of an existing principle. Such reports are essential in any system which pays regard to precedent and recognises the value of judiciary or 'judge-made' law. There are in England at the present day a number of reports both private and official. Among the best of the unofficial reports are those of the *Law Times*, *The Law Journal*, *The Justice of the Peace*, *The Times*, and *The All England Law Reports*, cited respectively as L.T.R., L.J., J.P., T.L.R., and All E.R. The abbreviated citations of the official reports are A.C. (appeal cases), L.R.Q.B. (Queen's Bench), and L.R.C.D. (Chancery Div.), with the year and number of vol. preceding. The official L. R. only commenced on 2 Nov. 1865, and their institution was due to the exertions of W. T. S. Daniel, Q.C., a former co. court judge. Law reporting is an art requiring considerable legal training and an acute eclectic power. Many barrister-reporters of the Council of Law Reporting have subsequently acquired judicial or professional distinction. There are also the official N. Ireland Reports, but the various Scottish L. R. pub. for the faculty of advocates are not official. The Ontario L. R. are pub. by the Law Society of Upper Canada, Quebec reports by the Quebec Bar. A similar system of federal and states reports has reached its full development in the U.S.A. It is to be observed that official L. R. have, as such, no superior title to judicial respect to such unofficial reports as have gained a first-rate reputation.

**Law Society**, society of solicitors estab. in 1825 to exercise a general control over the interests of solicitors. Any solicitor practising in Great Britain, or who has ceased to practise, is eligible for membership. The society examines students for all the solicitors' examinations, and makes arrangements for lectures. The disciplinary committee of the society is empowered by statute to hear complaints of misconduct on the part of solicitors and to order that offenders be suspended from practice or struck off the roll. In cases of suspected criminal offences by solicitors the society may report to the Public Prosecutor. The society administers a compensation fund to which all practising solicitors contribute £10 per annum and

from which defrauded clients can claim compensation. The society has a building in Chancery Lane, London, and a splendid library.

**Law Terms**, see TERMS.

**Lawman**, see LAYMAN.

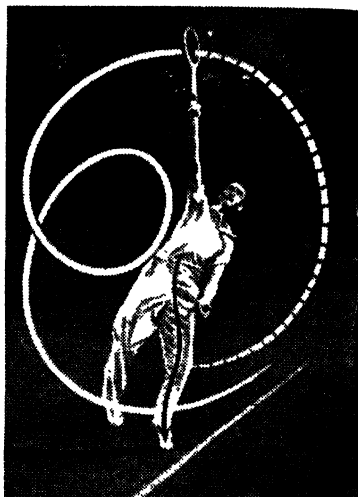
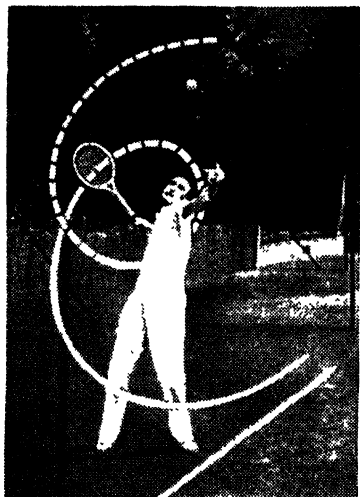
**Laves, Henry** (1596-1682), composer, b. Dinton, Wilts, was a pupil of Coperario, and in 1626 became a gentleman of the Chapel Royal. In 1633 he, with Simon Ives, wrote the music for a masque which was played at Whitehall, and in the next year composed the music for Milton's *Comus*. He wrote, among other works, *Choice Psalms put into Music for Three Voices*, 1648, and was commended by Milton for matching poetry with music fitting the words to perfection. L.'s brother Wm (1602-45), also a composer, was killed at the siege of Chester.

**Laves, Sir John Bennet** (1814-1900), agriculturist, educ. at Eton and Brasenose College, Oxford, and after spending some time in the study of chem. began in 1834 a regular system of agric. experiments. These he carried on at Rothamsted, on the family estate. He was assisted in his efforts, both literary and agric., by Dr Gilbert. Their joint work on artificial manures revolutionised agric. practices, and has been carried on since their time at Rothamsted, which is now a state experimental station.

**Lawn**, a fine linen (q.v.).

**Lawn**, close-mown, turf-covered plot, usually in a garden. The Eng. climate is specially favourable for the cultivation of a good L. Grass has largely superseded the camomile L. popular in Shakespeare's day. A grass L. may be made by sowing seed in Sept. or April, or by laying turf between Oct. and Feb. By laying turves evenly and closely on a firm bed and beating them thoroughly, a fine L. can be had in a few weeks. To make a L. from seed naturally takes considerably longer. The land should be perfectly level and be properly drained, and it is most important that the soil be well prepared. It is best to do the work early in Sept., first digging the whole plot, incorporating rotted manure, compost, or lawn peat, and working the soil until it is quite fine. The seed should be sown 1-1½ lb. to the square rod, then lightly raked and protected from birds. The best possible grass seed should be obtained, preferably dressed with Aldrin and Thiram against pests and disease. An estab. L. needs regular ann. treatment: aerating or spiking in autumn, top-dressing with soil compost in early winter, dressing with complete L. fertilisers in spring, rolling to firm, and mowing with increasing frequency as growth is made. Weed control should be exercised with L.-sand or selective weed-killers in late spring and early summer. See GARDENING. See also L. G. Lewis, *Turf*, 1949.

**Lawn Tennis** is one of the most popular games of the 20th cent. It originated from such games as racquets and tennis, the idea being to play the game on any large level piece of turf, without the need of a costly built court. The game is



THE SERVICE

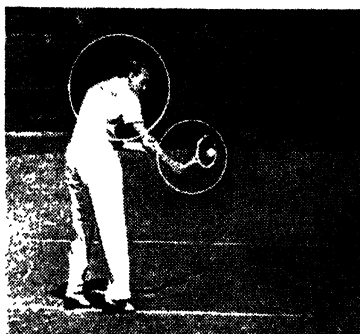
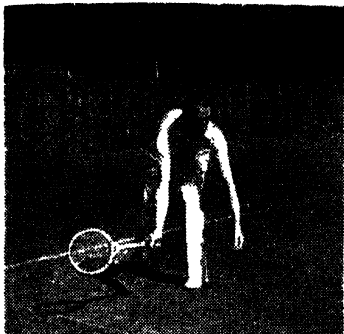
The first photograph shows the correct sideways position, the flexing of the knees, and the transference of weight to the forward foot as the racquet swings towards the ball. The second photograph shows the moment of impact in which the weight of the server is now completely on the forward foot.

played by 2 or 4 persons with racquets and ball across a net stretched over a court. It is an out-of-door summer game, and may be played on a grass lawn, on asphalt, cinders, wood, or concrete. In winter the game may be played indoors on a covered court. The court must be kept perfectly smooth and firm, and is marked with right-hand and left-hand courts and a service line. A court should be 78 ft long and 36 ft wide for a double game, 27 ft for a single-handed game. The height of the net in the centre is 3 ft. The ball is not less than  $2\frac{1}{8}$  in. in diameter nor more than  $2\frac{3}{8}$  in. and not less than 2 oz. in weight nor more than  $2\frac{3}{8}$  oz. In a single-handed game the server must stand behind the base-line, beginning the game from the right-hand court and afterwards serving from alternate courts. He must serve the ball diagonally across the court so that it falls within his opponent's service-court or upon the lines enclosing the service-court. If the ball touches the net, the service otherwise fulfilling the above conditions, it is counted as a 'let' and the server serves again from the same court. If the server fails to fulfil any of the above conditions the service is a 'fault.' Two faults count a point to the opponent. If the first service, however, fulfils the required conditions it 'counts,' the server may not serve again, and his opponent or the 'striker-out' must hit back the ball after the first bounce. Afterwards the ball may be volleyed on either side, or it may be hit after it has

touched the ground once. If either player fails to hit the ball over the net, or only hits it after the second bounce, or hits it so that it falls outside his opponent's bounding-lines, his opponent wins a point. In a 4-handed game the service is taken alternately by the opponents, who keep to the same side of the court to receive the service. The service is arranged so that each player serves 1 game out of 4; thus if A and B play C and D the order of service is A C B D.

*The method of scoring.* A player on winning his first point counts 15; on his second, 30; on his third, 40; if he wins a fifth stroke, before his opponent has reached further than 30, the game is his. If, however, both players have won 3 strokes the score is 'deuce.' Whoever wins the next stroke is scored 'advantage in' if he is serving, 'advantage out' if he is the striker-out. The game is not complete until 1 player has won 2 points in succession after 'deuce.' The player who first wins 6 games wins a set, but if the score is 5 all the set continues until one player has a lead of 2 games. The increased speed of play is one of the most marked recent developments.

*Service.* The server stands to the right or left of the centre line (according into which court he is serving). The ball should be thrown 4 or 5 ft up, and about 1 ft in front of the hitting shoulder. The hit should then be made with arm and racquet at full stretch, care being taken that the foot opposite to the striking arm



FOREHAND DRIVE AND BACKHAND VOLLEY

The first photograph shows the correct execution of the forehand drive: horizontal racquet, toes pointing to the sidelines, and the shoulder towards the net. The low backhand volley shows the knees well flexed, and the racquet held above wrist level.

*Photographs by courtesy of the Dunlop Sports Company*

is behind the base line and in contact with the ground until the hit is completed. The perfect service combines high speed with accuracy of placing.

**Strokes.** Other basic strokes are the forehand and backhand drive and the forehand and backhand low volley. In the forehand drive the hitting arm is extended fully, in line with the shoulder, and swung across the body over the opposite shoulder. The weight should be allowed to follow it naturally, without muscular tension. To avoid this it is well slightly to bend both knees, rising as the weight carries one on to the balls of the feet. In the backhand drive the hitting arm is carried across the body upwards towards the opposite shoulder and back again across the line of the stomach but rising to finish level with the hitting shoulder. Both forehand and backhand low volleys are made in a more or less crouching position. The latter is simply the reverse of the former; the hitting arm is not swung across the body and there is little movement of the feet. For particulars of advanced strokes (smash, spin, chop, etc.) the bibliography of the game should be consulted.

**Tactics** will largely depend upon the class of game played, men's or women's singles or doubles, or mixed doubles. The following 3 general rules, however, are indispensable to the successful player at all times and in all circumstances: (1) Learn to attack, with an all-court game, relying upon winning shots rather than upon the mistakes of an opponent. (2) Try to find out as quickly as possible an opponent's peculiarities, what are his best and weakest shots, and generally what kind of game needs to be played in order to defeat his efforts. (3) Concentration upon the game from start to finish to the exclusion of all distractions and annoyances. Broadly speaking, in the singles

game the aim is to secure a good length drive. This not only is more difficult to return, but gives one time to come up to the volleying position from which it is easiest to produce decisive shots. It doubles the return of service is probably the most important shot.

**Practice.** A practice wall with a net-high line chalked or painted on it is an excellent means of improving ground shots and teaching correct stroke-making. For practice of service much benefit can be derived from 15 min. serving from alternate ends into alternate courts of a vacant court. A player may also use a friendly match to improve his defects rather than with a view to beating his opponent; and watching an expert player will perhaps prove the best of all methods of learning the game. There are some L. T. professionals who are chiefly coaches, but L. T. has remained almost entirely an amateur game. The Brit. L. T. championships are played off at Wimbledon at the All-England L. T. and Croquet Club, which was founded towards the end of the last cent. This famous club still keeps its status as a private club, although it has moved and enlarged its grounds. The championships are organised by the L. T. Association and the club. An amateur L. T. player is not permitted to make any financial gain from playing. He is allowed to receive a contribution towards his expenses when competing in tournaments, but may not receive more than actually spent. He is not allowed to advertise commercially or gain pecuniary advantage from the game.

The winners of the All-England Championship (singles since the opening year, 1877; doubles from 1950) are as follows:

*Men champions.* S. W. Gore, 1877; F. Hadow, 1878; J. T. Hartley, 1879-1880; W. Renshaw, 1881-6, 1888-9; H. F. Lawford, 1887; W. J. Hamilton, 1890; W.

Baddeley, 1891-3, 1895; J. Pim, 1893-4; H. S. Mahony, 1896; R. F. Doherty, 1897-1900; A. W. Gore, 1901, 1908-9; H. L. Doherty, 1902-6; N. E. Brookes, 1907, 1914; A. F. Wilding, 1910-13; (no competition 1915-18); G. L. Patterson (Australia), 1919, 1922; W. T. Tilden (U.S.A.), 1920-1, 1930; W. M. Johnston, 1923; J. Borotra (France), 1924, 1926; R. Lacoste (France), 1925, 1928; H. Coochet (France), 1927, 1929; S. B. Wood (U.S.A.), walk-over, 1931; H. Ellsworth Vines (U.S.A.), 1932; J. Crawford (Australia), 1933; F. J. Perry, 1934-6; J. D. Budge (U.S.A.), 1937-8; R. L. Riggs (U.S.A.), 1939; (no official competition 1940-5); Y. Petra (France), 1946; J. Kramer (U.S.A.), 1947; R. Falkenberg (U.S.A.), 1948; F. Schroeder (U.S.A.), 1940; B. Patty (U.S.A.), 1950; R. Savitt (U.S.A.), 1951; F. Sedgman (Australia), 1952; V. Seixas (U.S.A.), 1953; J. Drobny (Egypt), 1954; T. Trabert (U.S.A.), 1955; L. A. Hoad (Australia), 1956-7.

*Women champions.* Miss Maud Watson, 1884-5; Miss Bingley, 1886; Miss L. Dod, 1887-8, 1891-3; Mrs Hilyard, 1889, 1894, 1897, 1899, 1900; Miss Rice, 1890; Miss C. Cooper, 1895-6, 1898; Mrs Sterry, 1901, 1908; Miss M. E. Robb, 1902; Miss D. K. Douglass, 1903-4, 1906; Miss M. Sutton, 1905, 1907; Miss D. Boothby, 1909; Mrs Lambert Chambers, 1910-11, 1913-14; Mrs Larcombe, 1912; (no competition 1915-18); Mlle Lenglen (France), 1919-23, 1925; Mrs L. A. Godfree, 1924, 1926; Miss H. Wills (U.S.A.), 1927-30; Fri. C. Aussem (Germany), 1931; Mrs H. Wills Moody (Miss H. Wills), 1932-3, 1935, 1938; Miss D. Round, 1934, 1937; Miss H. Jacobs (U.S.A.), 1936; Miss A. Marble (U.S.A.), 1939; (no official competition 1940-5); Miss P. Betz (U.S.A.), 1946; Miss M. Osborne (U.S.A.), 1947; Miss A. L. Brough (U.S.A.), 1948-50, 1955; Miss D. Hart (U.S.A.), 1951; Miss M. Connolly (U.S.A.), 1952-4; Miss S. Fry (U.S.A.), 1956; Miss A. Gibson (U.S.A.), 1957.

*Men's doubles.* J. E. Bromwich and A. K. Quist (Australia), 1950; K. McGregor and F. Sedgman (Australia), 1951-2; L. A. Hoad and K. R. Rosewall (Australia), 1953, 1956; R. N. Hartwig and M. G. Rose (Australia), 1954; R. N. Hartwig and L. A. Hoad (Australia), 1955; G. Mulloy and B. Patty (U.S.A.), 1957.

*Women's doubles.* Miss A. L. Brough and Mrs W. du Pont (U.S.A.), 1950, 1954; Miss S. Fry and Miss D. Hart (U.S.A.), 1951-3; Miss A. Mortimer and Miss J. A. Shilcock (Great Britain), 1955; Miss A. Buxton (Great Britain) and Miss A. Gibson (U.S.A.), 1956; Miss A. Gibson and Miss D. Hard (U.S.A.), 1957.

*Mixed doubles.* E. W. Sturgess (S. Africa) and Miss A. L. Brough (U.S.A.), 1950; F. Sedgman (Australia) and Miss D. Hart (U.S.A.), 1951-2; V. Seixas and Miss D. Hart (U.S.A.), 1953-5; V. Seixas and Miss S. Fry (U.S.A.), 1956; M. G. Rose (Australia) and Miss D. Hard (U.S.A.), 1957.

Other famous L. T. competitions are the Davis Cup (q.v.) and the Wightman

Cup, which is a competition for women, and the Australian, U.S.A., Fr., and S. African championships.

See Suzanne Lenglen, *Lawn Tennis: the Game of Nations*, 1925; F. Perry, *Tennis*, 1936; L. A. Godfree and H. B. T. Wakelam, *Lawn Tennis*, 1937; N. H. Patterson, *The Complete Lawn Tennis Player*, 1948.

Lawrence, St. (d. AD 258), early Christian martyr. He is said to have been b. at Huesca in Spain, and in the pontificate of Sixtus II he became a deacon at Rome, and was called upon by Valerian to deliver up the church treasures. He brought forward the poor and the sick as his treasures, and was condemned to suffer death by burning on a gridiron. His feast day is 10 Aug. See ESCORIAL.

Lawrence, David Herbert (1885-1930), novelist, b. Eastwood, Notts, son of a coal-miner. He went to Nottingham High School with a board-school scholarship and then to the local Univ. College. He became a clerk and later a schoolmaster. Coming to London, he wrote hist. books as *Lawrence H. Davidson*. His first novel was *The White Peacock*, 1911. L.'s mother d. in the year of its pub., and this marked a crisis in his life. The demands of love which his mother made upon him influenced his whole life and are the theme especially of his third novel, *Sons and Lovers*, 1913. L. describes man as a 'thought-adventurer', and his novels and poems are records of his intense emotional experiences and thought-adventures. He is thus always an autobiographical writer. With *Sons and Lovers* he achieved fame, which, with *The Rainbow*, 1915, was unjustly turned to notoriety. That book parallels the beautiful and penetrating series of poems, *Look! We Have Come Through*, pub. in 1917, but written between 1911 and 1915. L. was among the best poets of the 20th cent., but he admittedly paid no attention to form. He was not concerned with art so much as with discovering a guiding authority for his own life and that of his generation whose difficulties from an ill-fitting morality he saw clearly. In *Fantasia of the Unconscious*, 1922, he formulated the theories implicit in his novels. L. travelled much, finding sympathy and then disillusion. His intuition enabled him to penetrate and express the souls of the places and people he encountered. Fine descriptive powers are shown in his travel essays *Twilight in Italy*, 1916, *Sea and Sardinia*, 1921, and *Mornings in Mexico*, 1927. His sympathy with the traditions of the Aztec civilisation encouraged him to found an ideal community in Mexico, while in his Mexican novel, *The Plumed Serpent*, 1926, he expounds a mystical and yet physically satisfying religion. In his last works, *Lady Chatterley's Lover*, 1928, and *The Escaped Cock*, 1930, he returned without mysticism but with tenderness to the themes of human and divine love.

His primitivism, which led him to ignore character as conceived consistently and in a definite moral scheme, was apparently



suggested by Marinetti's physiology of matter, and therefore had its mainspring in the It. futuristic movement. Hence the amorphism and incoherence of such novels as *The Rainbow* and *Women in Love*, the characters in which seem to belong to a subhuman world, having but little relation to true life. Even in the more coherent *Lady Chatterley's Lover* the characters exist solely as symbols of fecundity or otherwise, the proletarians alone offering vitality and rejuvenation,



E.N.A.

DAVID HERBERT LAWRENCE

the fact being that L., convinced of the corruption of capitalist society, concluded that all civilisation was equally false. He rejected the intellect and, in reverting to what is irrational, superstitious, and rudimentary in man, himself became an embodiment of the very degeneration he sought to escape—a latter-day Baptist and a Noble Savage calling upon the world to repent of its intellectual pretensions and put its trust in the blood. Although his genius as a lyrical rhapsodist and as a writer of peculiar sensibility is undoubted, much of his work is marred by a sensationalism and excess that are usually associated only with vulgar art; while the novel, as he handles it, degenerates into formlessness and an unrestrained flow. But this is really explained by the fact that L., far from solving his intellectual problems by presenting an objective picture, hurls himself at his task, thinking aloud as he writes so that, as has been well said, 'his battle

with himself takes place in public and is itself the novel.'

Works in addition to those already mentioned are *The Trespassers*, 1912, *Love Poems*, 1913, *The Widowing of Mrs Holroyd* (play), 1914, *The Prussian Officer* (stories), 1914, *Amores* (poems), 1916, *New Poems*, 1918, *Bay* (poems), 1919, *Touch and Go* (play), 1920, *The Lost Girl*, 1920, *Tortoiseshells* (poems), 1921, *Aaron's Rod*, 1922, *England, My England* (stories), 1922, *Fantasia of the Unconscious* (essays), 1922, *The Ladybird*, 1923, *Studies in Classic American Literature*, 1923, *Kangaroo*, 1923, *Birds, Beasts, and Flowers* (poems), 1923, *The Boy in the Bush*, 1924, *St Mawr*, 1925, *David* (play), 1926, *The Woman who Rode Away* (stories), 1928, *Fancies* (poems), 1929, *Pornography and Obscenity* (essays), 1929, *The Virgin and the Gipsy*, 1930.

See H. J. Seligmann, *D. H. Lawrence*, 1924; E. D. MacDonald, *Bibliography of the Writings of D. H. Lawrence*, 1925; S. Pottor, *D. H. Lawrence*, 1930; J. Middleton Murry, *Son of Woman: the Story of D. H. Lawrence*, 1931; A. Huxley (ed.), *The Letters of D. H. Lawrence*, 1932; K. Merrild, *Poet and Two Painters*, 1938; H. Klingsnill, *D. H. Lawrence*, 1938; R. Aldington, *Portrait of a Genius, But . . .*, 1950; Fr. W. Tiverton, *D. H. Lawrence and Human Existence*, 1951; W. Binner, *Journey with Genius*, 1953; H. T. Moore, *The Intelligent Heart*, 1955; G. Hough, *The Dark Sun*, 1956.

Lawrence, Ernest Orlando (1901–), Amer. physicist, b. Canton, S. Dakota, U.S.A. Educ. at S. Dakota, Minnesota, Chicago, and Yale Univs. National research fellow, Yale, 1925–7. Associate prof. and prof. of physics, univ. of California since 1928. He invented the cyclotron (q.v.) (1931), by means of which he made researches into the structure of the atom, produced artificial radioactivity, and brought about the transmutation of certain elements; applied radiations in the study of problems in biology and medicine. Made director of radiation laboratory, 1936, and fellow of Amer. Association for the Advancement of Science and of the Amer. Physical Society. Awarded Elliott Cresson medal of the Franklin Institute, 1937; Comstock prize of the National Academy of Science, 1937; Hughes medal, Royal Society (of Britain), 1937; Research Corporation prize, 1937; and the Nobel prize for physics, 1939.

Lawrence, Gertrude (1898–1952), actress, b. London. She started as a dancer under the tutelage of Mme Espinosa and studied elocution under Italia Conti. Her first stage appearance was as a child dancer at the Brixton Theatre in the pantomime, *Babes in the Wood*, 1910. She toured in sketches, dancing troupes, cabaret, revues, musical comedies, and pantomimes, and then in 1921 she got her first big opportunity as leading lady in *A to Z* at the Prince of Wales's. She made many notable successes in London and in New York—and was outstanding in *London Calling* at the Duke of York's in 1923. She co-starred with Beatrice

Lillie (q.v.) in New York in *Andre Charlot's Revue of 1924*. Now in the very front, she spent her time between London and New York, a tremendous favourite in both cities. She made a very big hit, too, with Noel Coward in *Private Lives* and in 1936 in *Tonight at 8.30*, in which she showed her brilliance and her great versatility. G. L. was not only a magnificent actress in every branch of her profession, but she had complete command of stage technique. An indefinable but compelling charm won her immense popularity. Her last big success was as Anna Leonowens in *The King and I*, a big musical success by Rodgers and Hammerstein in New York. She *d.* during the New York run. Such was the affection felt for her by the members of her profession that on the night of her death all theatres in the West End extinguished their outside lighting for one minute to pay her honour.

**Lawrence, Sir Henry Montgomery** (1806-1857), soldier and statesman, elder brother of the first Lord L., was *b.* Matara in Ceylon. He joined the Bengal Artillery at Dum-Dum in 1823, and took part in the first Burmese war (1828), the first Afghan war (1838), and the Sikh wars (1845, 1848). In 1842 he was appointed resident at the court of Nepal, and about this time founded his famous philanthropic institutions, the L. military asylums, in the Punjab, Rajputana, and Madras. He prophesied the Indian Mutiny in 2 articles, pub. in 1856, and it was through his forethought that the Lucknow residency withstood the besiegers for 4 months. He himself was mortally wounded by a shell on 2 July 1857, and *d.* 2 days later. *See* lives by Sir H. B. Edwardes and H. Morivale, 1872; J. J. M. Innes, 1898; J. L. Morison, 1934.

**Lawrence, James** (1781-1812) Amer. naval captain, *b.* Burlington, New Jersey. When in command of the *Hornet* he captured the Brit. ship *Peacock*, but as commander of the *Chesapeake* was defeated by the *Shannon* and *d.* of his wounds.

**Lawrence, John Laird Mair, 1st Baron** (1811-79), viceroy and Governor-General of India, was *b.* Richmond, Yorks. He entered the Indian civil service in 1829, and acted as magistrate and land revenue collector in the neighbourhood of Delhi. When the news of the mutiny reached him he raised a new army of 59,000 men, and after a siege of 3 months captured Delhi. On his return to England (1858) the 'saviour of India' was created a baronet and granted a life pension of £2000 a year. He succeeded Lord Elgin as Governor-General of India (1863), and was promoted to the House of Lords in 1869. *See* lives by B. Smith, 1885; Sir R. Temple, 1889; Sir C. Atchison, 1892.

**Lawrence, Pethick-**, *see* PETHICK-LAWRENCE.

**Lawrence, Sir Thomas** (1769-1830), portrait painter, *b.* Bristol. He studied at the Royal Academy from 1787, and was elected as associate in 1791 and a full member in 1798. He succeeded Reynolds

as prin. painter to the king (1792), and became the fashionable portrait painter of his age. From 1820 till his death he was president of the Royal Academy. A representative collection of his work may be seen in the Waterloo Gallery, Windsor. *See* D. E. Williams, *Life and Correspondence of Sir T. Lawrence*, 1831; R. Gower, *Sir T. Lawrence*, 1900; H. Layard, *Sir Thomas Lawrence's Letter Bag*, 1906.

**Lawrence, Thomas Edward** (1888-1935), Brit. archaeologist and soldier. His interest in archaeology began early, and



Imperial War Museum

T. E. LAWRENCE

on leaving Oxford he was employed on the excavations at Carchemish under D. G. Hogarth (q.v.) and travelled in Syria. When Turkey entered the First World War, he was sent to Cairo to help in the Arab Bureau. In Oct. 1916 he went to Arabia where he became the moving spirit in the Arab revolt which protected the right flank of the Brit. advance into Syria. At the peace conference L. backed the Hashemite family, especially Feisal, and when the conference had finished, L. changed his name to Shaw and tried to hide in the Royal Air Force. As he had become a legend, and not only in his own country, he was a problem to authority and to himself, but was at last allowed to stay in the R.A.F. working at fast motor-boats for rescues at sea. He *d.* in a motor-cycling accident. He was either much loved or cordially

disliked. His story of the Arab revolt is told in *The Seven Pillars of Wisdom*, 1926 and 1935. See H. Williamson, *Genius of Friendship*, T. E. Lawrence, 1941, and R. Aldington, *Lawrence of Arabia*, 1955.

**Lawrence:** 1. Co. seat of Essex co., Massachusetts, U.S.A., on both sides of the Merrimack R., 26 m. to the N. of Boston. It has some of the largest mills in the world, the 28-ft fall of the riv. and a large dam providing excellent facilities for working them. The manufs. include cotton, woollen, and worsted cloth and paper, as well as machinery, shoes, feed, malt liquors, plastic fabrics, rubber products, soap, and radio equipment. Pop. 80,550.

2. Co. seat of Douglas co., Kansas, U.S.A., on the Kansas R. It manufs. paper, flour, and pipe organs, and is the processing and shipping centre for a grain-growing and truck-farming area. The Kansas Univ. and the Haskell Institute (Indian) are here. Pop. 23,350.

**Lawrence, St. River,** see ST LAWRENCE.  
**Laws of War,** see AERIAL WARFARE;  
 CHEMICAL WARFARE; CRIMES, WAR;  
 INTERNATIONAL LAW; PRISONERS OF WAR; REPRIISALS.

**Lawson, Cecil Gordon** (1851-82), landscape painter, b. Wellington, Shropshire. He was first admired for riverside Chelsea subjects. His 'The Hop Gardens of England,' painted at Wrotham, Kent, was a feature of the Royal Academy in 1876; but 'The Minister's Garden' of 1878 (now in the Manchester Art Gallery) was his great success. His 'August Moon' is in the Tate Gallery. Great promise was cut short by his early death. See memoir by Sir E. Gosse, 1883.

**Lawson, Henry** (1867-1922), Australian short story writer and poet, b. on Grenfell gold-field, New S. Wales, of Norwegian father and Australian mother. Father was sailor, prospector, miner, and subsistence farmer; mother, a feminist and journalist. He had little schooling and many jobs, started writing verse in his teens, and leapt to popularity at 21 with 'Faces in the Street,' pub. in the *Sydney Bulletin*. In the *Days when the World was Wide*, 1896, was enthusiastically received, and was followed by many books of prose and verse collected from the *Sydney Bulletin*, *Boomerang* (Brisbane), *Worker*, etc. L.'s name is coupled with 'Banjo' Paterson's (q.v.) as a leading Australian balladist, but his stories are more important. He led a restless life, travelling in W. Australia, New Zealand, and England, but chiefly he roamed the outback of New S. Wales and wrote of and for the people he worked amongst, on the land and in the diggings. He had a sense of fun and an ironic humour 'mateship' was his creed, he created a company of memorable characters, and his colloquial, deceptively easy style is the perfect vehicle. He has been called 'the first articulate voice of the real Australia.' By far the most popular col-lections of his stories are *White the Billy Boils*, 1896. *On the Track and over the Striplands*, 1900, and *Joe Wilson and his*

*Mates*, 1901. Collected works: *Poetical Works of Henry Lawson* (3 vols.), 1925, and *Prose Works of Henry Lawson*, 1948. See *Henry Lawson*, 1931, by his mates, and Vance Palmer, *The Legend of the Nineties*, 1954.

**Lawson, Sir Wilfrid** (1829-1906), politician, b. Carlisle, first returned to Parliament as a member for Carlisle in 1859. From 1886 to 1900 he represented Cocker-nouth, and from 1903 to 1905 the Cam-borne div., Cornwall. He was an ardent advocate of teetotalism, and in 1864 introduced a local veto bill which provided that the public-houses in any dist. should be closed where two-thirds of the inhab. expressed a wish to this effect. The bill was thrown out by a great majority. See memoir by G. W. E. Russell, 1909.

**Lawton, city,** cap. of Comanche co., SW. Oklahoma, U.S.A. It is the industrial centre for an agric. area (cotton, wheat, live-stock), with oil wells near by. It produces cotton-seed oil, dairy products, packed meat, flour, feed, leather goods, concrete products, wood products, tiles, and patent medicines. There are granite and limestone quarries, sand, gravel, and asphalt pits. Cameron State Agric. College is here. Pop. 34,757.

**Lawyer,** generic term embracing anyone versed in the law, or who follows the profession of the law, or practises in the law courts. It now includes jurists, judges, barristers or counsel, and solicitors, though formerly there were also attorneys, special pleaders, and proctors. Attorneys corresponded to the procurators of the civil and canon law, but by the Judicature Act, 1873, they were denominated solicitors, a term once appropriated exclusively to legal agents who practised in the courts of equity. Special pleaders were those members of the Inns of Courts whose occupation was confined to giving opinions and drawing pleadings. These functions are now performed by counsel in the ordinary course of their duties. Proctors, who were analogous to solicitors, and practised in the Court of Arches, are now classed as solicitors.

**Laxatives,** see APERIENTS.

**Laxness, Halldor Kiljan** (1902- ), Icelandic novelist and essayist, awarded the Nobel prize for literature in 1955 'for his descriptive epics which have renewed the great Icelandic art of narration.' 'Kiljan Laxness' are assumed names, his original name being Halldór Guðjónsson. His pubs. include *Salka Valka*, 1934, and *Independent People*, 1939; he has also trans. Hemingway's *A Farewell to Arms*, Voltaire's *Candide*, and other works into Icelandic. See illustration, p. 668.

**Lay-reader,** layman licensed by a bishop in the Anglican church to read Morning and Evening Prayer (except the Absolution), to officiate at funerals, and to preach. In the time of St Cyprian readers were an inferior order of clergy, and they still form one of the minor orders of the Rom. Catholic Church. The reformed Prayer Book of Edward VI contained an office for the admission of

evolution of sulphur dioxide, and these L. compounds further react with more galena, forming pure L. and sulphur dioxide.

In the N. of England a small blast furnace is used, simply consisting of a brick shaft with a sloping iron bed plate. This shaft is lined with firebrick for a height of about 4 ft. Through the back comes a single tuyere about a foot above the bed, and a charging space is left above the iron plate called the fore stone, which closes the front. The L. trough is an iron pan, the larger part of which is filled with coarse cinders, and separated from the rest by a vertical partition, which does not quite reach the bottom. The bed plate is now covered with a sloping mass of coal ashes to about 1 in. below the tuyere, the fire is then made up with coke and peats, and the blast is turned on. When the furnace is hot slag, ore, and the fused mass over from a previous charge (browse) are introduced. As the reduction goes on the L. sinks through the ashes on the bed plates, and runs into the troughs and filters through the cinders into the smaller div., whence it is tapped into moulds. The L. so obtained is hard and somewhat impure.

The last process is the Scotch ore hearth, in which there is an iron sump some 2 ft square and 6 in. deep, set in masonry and surrounded on 3 sides by iron bars about 8 in. square. The bars are called the side stones and the back stones. Under the back stone is the single tuyere. The front of the hearth has a sloping plate in which is a gutter, down which the L. flows into a trough. The open back opposite to the back stone carries a girder which supports a small flue for carrying off the fumes.

L. produced by these processes is nearly always hard, and has to be softened. This is quite a simple process, as the impurities which render the L. so hard will all oxidise if the L. be kept heated for sev. hours or days as the case may be. Any amount of L. can be treated at once, the oxides rising to the top and being skimmed off.

L. being very malleable is easily rolled into sheets. L. for this purpose is first cast into cakes about 5 ft square. L. piping is common because L., when hot, flows easily under pressure. Such pipes are usually forced out by strong hydraulic pressure, the L. being squeezed between the core and the die. Shot is made by pouring molten L. into a perforated ladle containing cinders; the L. finds its way through the perforations, and if allowed to fall through about 150 ft the drops become spherical. Those which are not true are separated by rolling down an inclined plane having a gap in it. The true ones will gather enough impetus to jump it, but the oblate ones fall through and are remade.

L. forms numerous alloys, and in particular: *Bronze bearing metal* (Cu 77, Sn 8, Pb 15); *solders* (Pb and Sn), a common one being composed of equal amounts of the 2 metals;  *pewter* (Sn 75, Pb 25);

and *fusible alloys* of many kinds. It forms a basic oxide  $PbO$  (litharge; massicot) from which the many salts of L. can be obtained by interaction with appropriate acids. In such compounds the valency of the metal is 2. In addition there are the oxides L. dioxide,  $PbO_2$ , a puce-coloured solid; Red L. ( $Pb_3O_4$ ), both of which can be made to yield oxygen either when heated alone or with concentrated sulphuric acid. The sulphate and carbonate of L. can be obtained by double decomposition, and are almost insoluble in water. White L. (q.v.) is an important white pigment made by the action of acetic acid (vinegar), air, and carbon dioxide on the metal.

*Production.* The U.S.A. produces over one-third of the world's L. output, Mexico following with about one-eighth. Other leading countries are Australia, Spain, and Germany. See also ACCUMULATOR. See J. W. Gough, *The Mines of Mendip*, 1930.

**Lead, The,** instrument for discovering the depth of water at sea. It is a large piece of elongated lead, similar in shape to an old-fashioned clock-weight, attached to a line called the lead-line, generally about 20 fathoms long. It weighs from 7 to 11 lb. There is a cavity at the lower end filled with tallow to ascertain upon what sort of ground the soundings are struck. The weights for different depths of sounding naturally vary. When the depth is great the deep-sea L., weighing from 25 to 30 lb., is used, the line being marked by knots every 10 fathoms. One of the regulations prescribed by the navy is that ships shall constantly keep the hand-lead going when near land or shoals, or in pilot water.

**Lead Chromate,** see CHROME YELLOW.

**Lead-glance,** see GALENA.

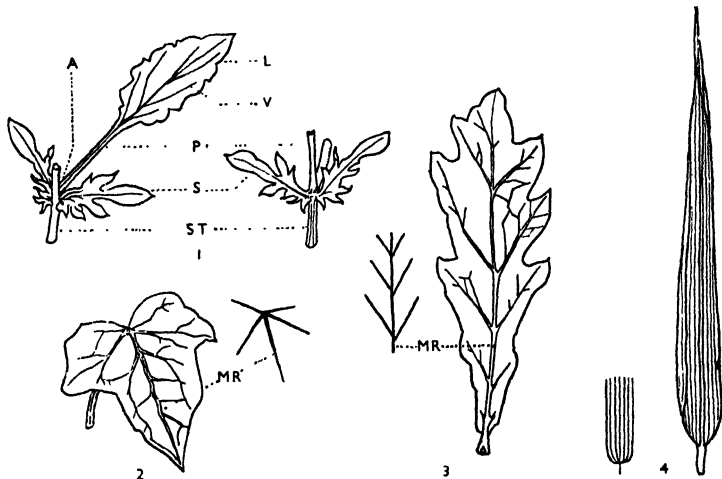
**Lead Plaster** (*Emplastrum plumbi*), made of lead acetate, soap, and water, and is used as an external application to raw and irritated surfaces. It has practically no effect on the unbroken skin, but when applied to sores has the effect of coagulating the albumen and so contracting the small blood-vessels. *Emplastrum plumbi iodidi* is made from lead iodide, and has much the same curative effect.

**Lead Poisoning, or Plumbism,** form of poisoning due to the introduction of lead into the system. It is an occupational disease and specially affects workers in potteries, where lead glaze is used, painters, plumbers, glaziers, printers, and others. In such cases the disease is the result of an accumulation of minute doses of lead being absorbed over a long period of time. The symptoms vary with the extent of the poisoning, and also with the constitution of the individual. A common form is painter's colic, which is attended with frequent intestinal pains and obstinate constipation. The poison proceeds to produce anaemia, wasting, muscular tremors, and ultimate paralysis. Among characteristic signs are the blue line on the gums and the presence of 'wrist-drop,' in which the hands become useless and the joints deformed. A test for lead in the system is provided by painting a small

area of the skin with a 6 per cent solution of lead sulphite; if lead be present the area will darken in a few days. The treatment in acute cases consists of the administration of potassium iodide. Lead colic may be alleviated by administration of belladonna; for paralysis strychnine is used in conjunction with potassium iodide, and electro-therapy has proved a valuable aid in restoring the use of muscles. The treatment should in all cases be prescribed by a doctor. Preventive measures employed in factories include the wearing

put by mutual consent as to matters not contested or merely introductory, and may also be put to refute evidence *already given* by an opposing witness. L. Q.s may be put without restriction in cross-examination.

Leaf, in botany, a term applied to various lateral outgrowths of the stem, e.g. bracts, sepals, and petals, all of which are considered under their individual headings, but in its best-known sense it is applied to those members of the plant which constitute its foliage. The foliage



LEAF: PARTS AND VENATIONS

Leaf parts. 1 (pansy): A, axil of leaf between stem and petiole; L, lamina or blade; V, vein or nerve; P, petiole or leaf-stalk; S, stipule at base of petiole; ST, stem of plant.

Venation of leaves. 2, Reticulate or net venation of ivy (palmate); 3, reticulate venation of oak (pinatifida); 4, parallel venation of bamboo; MR, mid-rib.

of overalls and respirators, the provision of baths and insistence on their use by employees, frequent medical examinations, and the provision of acid drinks tending to remove lead from the system.

**Leadhills**, vil. of Lanarkshire, Scotland, 25 m. S. of Lanark. Its lead-mines have been worked since the early 17th cent., and some silver is also mined. Pop. 500.

**Leading Question.** In the law of evidence (q.v.) a L. Q. is one which by its form suggests to the witness the answer required by counsel for the purposes of his case. For example, if in an action for damages for personal injuries alleged to have been sustained by the negligence of a motor-bus driver, the plaintiff's case is that the bus was being driven at an excessive speed, a witness for the plaintiff should be asked not 'Was the bus going at a furious pace?' but 'At what speed was the bus going?' L. Q.s are, however,

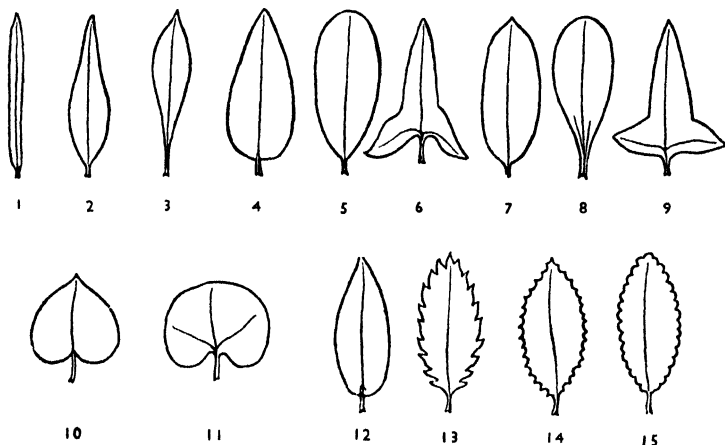
L. consists typically of 3 parts: the *lamina* or L.-blade, *petiole* or L.-stalk, and the L.-base. The latter frequently bears 2 lateral outgrowths known as *stipules*, e.g. rose; when the petiole is absent, as is often the case, the L. is said to be *sessile*, e.g. honeysuckle. The shape of the lamina varies greatly, but the different forms are divided sharply into two as *compound* or *simple*, the former indicating that the lamina is split up into a number of distinct parts called leaflets (as in the horse-chestnut, which is palmately compound), and the ash, which is pinnately compound), while the latter indicates that however much the blade may be indented it is not split up into leaflets. The venation of L.s is necessarily related to their form: in the typical L. of Monocotyledon, e.g. iris, the veins run parallel to one another, and the L. is long and undivided, while in a Dicotyledon the

venation is always reticulate and the L. may be greatly divided, e.g. horse-chestnut. The same plant may bear sev. types of L.s, and one which grows with part of its foliage in a submerged condition will be noticed to have its aquatic L.s very finely divided to withstand the force of the water (e.g. water crowfoot). The functions performed by L.s are of the greatest importance to the life of the parent plant. Most of the carbon dioxide absorbed from the atmosphere is taken in by the L.s during photosynthesis; respiration or the exchange of carbon dioxide for oxygen is also effected by them, as well as transpiration or the giving

the veins in the front wings, especially in the female. The vegetable mimicry is carried out even in the eggs, which, in many species, closely resemble seeds.

**Leaf-mould**, term applied to thoroughly rotted leaves in gardening; beech and oak L. is most valued. Also applied to certain fungus diseases of foliage (e.g. Tomato L.).

**League** (Lat. *leuca*, a Gallic m.), measure of length of great antiquity, estimated by the Romans at 1500 paces, or 1.376 Eng. m. It was introduced into England by the Normans, and was then equal to 2 O.E. m., or about 3 modern m. It is now a nautical measure, the twentieth part of a degree,



LEAF: SHAPES OF BLADES AND LEAF MARGINS

1, linear; 2, lanceolate; 3, oblanceolate; 4, ovate; 5, obovate; 6, sagittate; 7, elliptical; 8, spatulate; 9, hastate; 10, cordate; 11, reniform. Margins: 12, entire; 13, serrate; 14, dentate; 15, crenate.

off of large quantities of surplus water. The development and arrangement of leaves are associated with these functions. To use carbon dioxide the L. must have light, and L.s form a mosaic to secure as much as possible without directly overshadowing one another. Plants growing in dry situations (xerophytes) frequently have L.s which are reduced in size, or provided with hairs, sunken stomata, or thick cuticles. These were formerly regarded as devices which reduced water loss during transpiration, but experiments show that such plants may actually transpire rapidly, and it seems that the problem is more complex than was at first thought. L.s may be variously modified, e.g. into the fleshy parts of bulbs, or into tendrils or thorns; reduced (scale) L.s also occur.

**Leaf Insect**, insect genus (*Phyllium*) of the family Phasmodidae, which, on account of its resemblance to a leaf, conceals itself from its enemies. The leaf-like appearance is chiefly due to the arrangements of

i.e. 3 geographical m., or 3'456 statute m. The French and other nations use this nautical measure. See METROLOGY.

**League**, The, or, properly, the Holy Catholic L., was a coalition organised in 1576 by the Duke of Guise to suppress the reformed religion in France by denying civil and religious liberty to the Huguenots, and particularly to prevent the future accession of Henry of Navarre, a Protestant, to the Fr. throne.

**League of Nations**. Immediately after the armistice in 1918 associations to prevent wars were formed in England, France, Germany, and Scandinavia, while in the forefront of the Versailles peace treaty were placed President Wilson's proposals for a L. of N. (see COVENANT OF THE LEAGUE OF NATIONS). The L. of N. formally came into being on 1 Jan. 1920, when the treaty of Versailles came into force, and it consisted of 28 allied states and 14 neutral states. The U.S.A. was not a member. The membership of the L. of N. was later increased to some

60 states, Great Britain and the dominions (including the Rep. of Ireland, together with India) being each independent members, with separate voting power and representation. Japan and Germany withdrew in 1935, and Italy in 1937; Russia and Afghanistan became members in 1934.

Membership was open to all self-governing states, dominions, and colonies, provided effective guarantees were given of intentions to observe international obligations and to accept the ruling of the League in matters concerned with the military services; but the subsequent hist. of Europe made these and many other conditions of purely academic interest. A two-thirds majority in the Assembly was required to secure membership. The purpose of the L. of N. was 'to prevent future wars by establishing relations on the basis of justice and honour and to promote co-operation, material and intellectual, between the nations of the world.' The official seat of the L. of N. was at Geneva and the official languages were French and English. The names of Earl Balfour, Aristide Briand, Lord Robert Cecil, Lord Grey of Fallodon, Dr F. Nansen, Dr Gilbert Murray, and F.-M. Smuts are among those especially associated with the development of the League. Under the covenant (q.v.) of the League a member state undertook never to go to war with a fellow state until all possibilities of a peaceful settlement had been exhausted, and then only after an interval of 9 months. With a member state which broke this pledge, the other states guaranteed to discontinue financial and economic relations. The covenant's signatories constituted the majority of the world's govts., and its provisions were very far-reaching, including the estab. of a permanent administrative, deliberative, and judicial organisation; and, also, it was based implicitly upon an agreed philosophy of gov. The League was not an executive body. It had no Cabinet. It was not an instrument of international policy. Policies continued to be framed in the different caps. and by the ministers and foreign offices of individual states. That could not but continue, however much the League or any analogous body might gain in authority, for many world problems are too great to allow of centralised direction. The mutual relations of two or more states are of no concern to the society of states unless and until they involve danger of a breach of the world's peace. The function of the League was, in this sphere, not positive but negative. It did not conduct policy. It served as the limiting factor of policy. But the prevention of war cannot be dissociated from the positive organisation of society. Hence the concern of the League for the limitation and control of armaments and the obligation of its members to interchange full and frank information on this subject. The League was, in essence, an association for mutual protection. It was based on the conception of co-operative defence and it was pledged to embody

that conception in a practical system. All treaties which a member state contracted with other states were to be registered with the League for immediate pub. Members of the L. of N. guaranteed to direct international interest and action towards such questions as labour conditions, public health, communications, economic and financial questions, the traffic in arms, the traffic in women and children, and the traffic in dangerous drugs. The primary organisations of the L. of N. were as follows: (1) the Assembly, consisting of delegations from all the member states. Each delegation consisted of 3 delegates, and each state had 1 vote. The Assembly met usually at Geneva on the first Monday in Sept., and the president was elected at the beginning of each session. The Assembly was divided into sev. prin. committees, concerned with jurisdiction, technical organisations, disarmament, budget and staff, social questions, political questions, and the admission of new members. The decisions of the Assembly had to be unanimous, except on questions of procedure, when a majority vote only was required. (2) The council, consisting of permanent members and non-permanent members, while any state might be represented at meetings at which matters affecting that state were discussed. The council met in Jan., May, and also before and after the meetings of the Assembly in Sept. (3) The secretariat, the permanent civil service of the L. of N., was composed of the secretary-general and 500 officials, selected from citizens of the member states and from the U.S.A. It was the working instrument of the League, with H.Q. in Geneva. (4) The International Labour Office, which had a working staff almost as large as that of the secretariat. (5) The Permanent Court of International Justice (see INTERNATIONAL JUSTICE, COURT OF). There were other secondary organisations belonging to the L. of N., such as technical organisations, permanent and temporary advisory committees, administrative commissions, international institutes, and an international bureau. The expenses of the L. of N. were shared by the member states, and the ann. expenditure was about £1,000,000. In 1928 John D. Rockefeller, junior, gave £2,000,000 for the endowment of the League library.

The chief function of the L. of N. was the prevention of war, although its important social and economic work must not be overlooked. The League, working through the council, did prevent war in sev. instances—as in 1921 when Yugoslavia invaded Albania and in 1925 when Bulgaria invaded Greece. Other political disputes which were settled were, in 1920, between Sweden and Finland concerning the Åland Is., and later a frontier question between Turkey and Iraq. Other work of the L. of N. consisted in arranging mandates for various countries, in investigating the minority question of certain countries, and in assisting reconstruction work in Austria, Hungary, and

N. Greece. The constructional and co-operative work of the League embraced valuable contributions to child welfare work and public health instruction. Many years' study was given to the question of disarmament in preparation for the Disarmament Conference of 1932, but the doctrine of collective security was doomed to frustration. The L. of N. soon began to encounter failures when the 'vital interests' of powerful totalitarian nations were involved, as, for example, when Italy disallowed its intervention over the murder of Tellini, and Greece was forced to pay an indemnity of £500,000. Also the League never arrived at a just settlement of the Polish-Lithuanian quarrel, occasioned by the seizure of Vilna in 1920. One of the chief causes of failure on the constructive side was that its economic conferences had little effect on the tariff policies of individual nations. The L. of N. did not force, but ought to have forced, its decisions on members. In fact all conventions (international agreements) sponsored by the League had to be ratified, and ratification was optional at the discretion of each gov. Thus internationalism was not allowed to interfere with nationalism, but once a convention was ratified the contracting states were bound to carry it out. If they failed to do so other states might lodge a complaint against them. What happened indeed was that recalcitrant states merely withdrew their membership or went to war in spite of the League's decisions. In 1935 the Disarmament Conference broke down. In the same year Mussolini invaded Ethiopia regardless of economic sanctions. Germany, who was now rearming at top speed, gave notice of secession from the League and she was followed by Japan, who had invaded N. Manchuria in defiance of a European Commission and the adverse judgment of the League. (See ITALO-ETHIOPIAN WAR, 1935-6, and SINO-JAPANESE WAR.) Again when Paraguay and Bolivia went to war over their rival claims to the Gran Chaco no power intervened and the warnings of the League were innocuous. When Japan occupied Manchuria the League instituted no economic sanctions, nor made any effort to expel Japan from ter. which Japan asserted to be vital to her national existence. Italy gave notice of withdrawal in 1937 as a consequence of her *entente* with Germany and the League's half-hearted efforts to thwart her Ethiopian adventure. Sev. of the S. Amer. states also left the League or gave notice of their intention to do so. The prestige of the League never recovered from the blow of the It. conquest of Ethiopia—for a league that took care to confine sanctions to a restriction of trade as opposed to military sanctions had, in reality, abjured the covenant. The result was that the different nations reverted to the policy of alliances and blocs. The annexation by Germany of Austria and Czechoslovakia met with no opposition from the League, which was again supine when Germany invaded Poland in 1939.

Yet curiously enough, after the Russian invasion of Finland, the League Assembly was convened on 11 Dec. 1939, Russia's action was condemned and she was expelled from the League—the member which had made the strongest appeals for disarmament. This was the League's last activity. In 1938 the League was operating through a permanent council comprising only Great Britain, U.S.S.R., and France, with 12 other states elected annually. In 1940 some of the offices of the League were transferred to New York. The final meeting of the League Assembly was held on 8 April 1946. The states remaining members of the League to the last sent strong delegations to this final meeting, thereby attesting at the last solemn obsequies the importance they attached to its principles; for although the League was now disappearing, the U.N.O. (q.v.) had already replaced it and was now to take over the material assets of the League and assume some of its political and technical functions. The necessary decisions had to be taken as quickly as possible so that essential work might be carried on without interruption. All through the war the League had kept alive the machinery and technical services it had estab., for a long period with the hostile Germans only 10 minutes' walk from the Palais des Nations. Far-reaching posers were entrusted to the League by nations or groups of nations under treaties, conventions, and other international political instruments. The League's Treaty Series, almost the only part of its activities that had, for obvious reasons, not been kept fully abreast of events during the war, needed to be taken over by the U.N.O. so that the valuable international code might be completed. Even before this closing meeting of the League Assembly the U.N.O. decided to take over the technical sections of the League, notably the economic, social, health, and opium sections—together with the League library of more than 300,000 vols. and the archives of the League. The financial position remained sound to the last. The total value of the assets was about 47,000,000 Swiss francs. It may be that, on balance of opinion, the acting secretary-general in his final report on the work of the League was justified in his view that the League may be held not to have failed, but that it was the nations that failed the League—failure being due to the fact that statesmen and peoples contented themselves with lip service, while some states foolishly imagined that they could be lookers-on.

*Historical analogies to the League of Nations.* The concept of the L. of N. of 1920 was new, but more or less remote analogies may be sought in former schemes or projects for a European federation. This project indeed has a long hist. 'Since the fourteenth century the idea of bringing the states to federation has been in the European mind. As early as 1307 the French *légitime*, Pierre Dubois, had drafted a scheme for forming a union of Christian nations under the lead of the



King of France' (J. S. Ross Hoffman, *The Great Republic*, 1942—Chapter I of which describes the deeply settled objection of W. man through the cents. to a world state). At the end of the 16th cent. Henry IV's minister, Sully, set forth a comprehensive plan: 'Europe would be composed of fifteen dominions nearly equal in size and strength and those would be constitutionally integrated in a permanent league.' The proposal was adapted to the needs of the 18th cent. by the Abbé de St Pierre. After the War of the Sp. Succession, which ended in 1714, he proposed to form 'a permanent league of European states on the basis of the *status quo*, which league would command an international army and have power to enforce submission to its collective will.' After the Napoleonic wars these ideas influenced the conception of the Holy Alliance, and after the First World War they were revived by Aristide Briand (q.v.). (See W. Lippmann, *U.S. War Aims*, 1944.)

For cents. past, indeed, mankind has searched for some means of preventing war. Repeatedly in the last 4 cents. there has been held up as the ultimate ideal the conception of an association of nations co-operating for their common good and bound together for the fundamental purpose of making war impossible. Some former plans still have more than an historical interest. Research to-day will find something of practical value in such conceptions as those embodied in Wm Penn's plan for a federal union of Europe, made known in 1693, or again in the scheme for a federation of free and democratic peoples pub. in 1795 in Kant's *Critique of Pure Reason*. The chaotic period which followed the Fr. Revolution and Waterloo gave a new impulse to the search. But the only solution forthcoming was that submitted by the Vienna Congress in the shape of the Holy Alliance. This was foredoomed to failure in that it perpetuated a reactionary *status quo* and through a military alliance repressed human freedom. In the second half of the 19th cent. Europe was spared any general war as a result of the armed truce brought about by the Brit.-sponsored balance of power system. Some progress at least towards international co-operation was made as a result of the suffering caused by the Crimean War; for international agreements for the adoption of more humanitarian standards in the conduct of war were concluded at the conference of Paris in 1864. The first major achievement in the sphere of international co-operation for avoiding the causes of war came, however, through the Hague Conferences of 1899 and 1907, held on the initiative of the Russian Gov. The agreements reached in these conferences provided machinery for the pacific adjustments of international controversies through arbitral tribunals set up at The Hague. Progress would have been made too in the field of international disarmament but for the unyielding opposition of the Ger. Gov. When the third Hague

Conference was about to meet, the First World War broke out.

See *Handbook on the League of Nations*, 1920-4, and *League of Nations Year Book*, 1925 and later, and other official pubs. of the League; also R. Williams, *The League of Nations To-day*, 1923; H. G. Alexander, *The Revival of Europe*, 1924; G. G. Butler, *A Handbook to the League of Nations*, 1925; F. Alexander, *From Paris to Locarno and After*, 1929; Robert de Traz, *The Spirit of Geneva*, 1935.

**Leagues**, political alliances or coalitions such as the Aetolian and Achaean L. of anc. Greece; the Holy L., of which the most famous are those formed by Pope Julius II against Venice in 1508 (often known as the League of Cambrail), and against France in 1511; commercial L., like that of the Hanse tns (see HANSEATIC LEAGUE); the Sölemn League and Covenant between England and Scotland in 1643, for the estab. of the Presbyterian Church; the Smalkaldic League in Germany; the Catholic League in France; and the Protestant Union and Catholic League in Germany, which heralded the Thirty Years War. After the peace of Westphalia, while France and Spain were still at war, Mazarin helped to form the League of the Rhine, which included powerful Ger. princes, and was aimed against the emperor. Many L. were formed during the latter part of Louis XIV's reign to check the growing power of France, the most important being the League of Augsburg (1686), formed after Louis had seized Strasburg and Ger. lands in the period of peace after the treaty of Nimwegen, and the Grand Alliance (1701-2) headed by William III of England. The most famous league of the 18th cent. was that of France and Spain, which were allied by a series of family compacts. The name has been adopted by various political associations, such as the Anti-Corn Law League, the Irish Land League, the Primrose League, the United Irish League, etc. See QUADRUPLE ALLIANCE. See B. Croce, *Europe in the Nineteenth Century*, 1934; H. Pirenne, *Histoire de l'Europe*, 1936; R. Seton-Watson, *Britain in Europe, 1789-1914*, 1937.

**Leake, William Martin** (1777-1860), officer and archaeologist, b. London. Having obtained the rank of lieutenant-colonel in the army, he travelled in Asia Minor, the Morea, and other parts of Greece, surveying the coasts and fortresses and making collections which are now in the Brit. Museum. He retired in 1823 and pub. sev. works, among them being *Researches in Greece*, 1814, *Topography of Athens*, 1821, *Travels in the Morea*, 1830, *Travel in Northern Greece*, 1835, and *Numismatica Hellenica*, 1859. See memoir by J. H. Marsden, 1864.

**Leamington** (Royal Leamington Spa), municipal bor. and health resort of Warwickshire, England, on the R. Leam, 2½ m. from Warwick. The mineral springs (saline, chalybeate), first recorded in 1586, are used extensively. L. is famed for its parks, gardens, and spacious

avenues, and has metal industries. Pop. 37,000.

**Lean, David** (1908- ), film director, b. Croydon, educ. Leighton Park. Entered films in 1928 as a camera assistant; later he worked as an assistant director and editor. He was co-director with Noel Coward of *In Which We Serve*, and has directed among other films *This Happy Breed*, *Blithe Spirit*, *Brief Encounter*, *Great Expectations*, *Oliver Twist*, *The Sound Barrier*, *Hobson's Choice*, *Summer Madness*, and *The Bridge on the River Kwai*.

**Leander**, see **HERO AND LEANDER**.

**Leap Year**, also known as **Bissextile**, name given in England to every year which has 366 days. In 46 B.C. the calendar was reformed by Julius Caesar. The solar year was settled at 365½ days, and under the new arrangement the Feb. of every fourth year was to have 29 days instead of 28, the calendar thus taking a leap of 1 day every fourth year to balance its being 6 hrs too short in each ordinary year. All years divisible by 4 without a remainder are L. Y.s, except those ending in 00, of which only every fourth is a L. Y., i.e. those in which the number of the cent. is divisible by 4. See also **CALENDAR**.



N.P.G.

EDWARD LEAR  
Silhouette by an unknown artist.

**Lear, Edward** (1812-88), artist and non-sense writer, b. London, of Dan. descent. As a young man he was for a time art master to Queen Victoria. He early made ornithological drawings in the Zoological Gardens, and assisted Gould as

draughtsman in his *Birds*, 1832-6. Later he exhibited for years at the Royal Academy. L. produced his delightful *Book of Nonsense*, 1846, for the grandchildren of his patron, the Earl of Derby, and drew the plates to *The Knowsley Menagerie* for him. Ruskin said of *The Book of Nonsense* that it was 'first in the list of a hundred delectable volumes of contemporary literature.' It was this book rather than his paintings and drawings and other writings which gained him fame, and he is remembered above all as the practical originator of the limerick. Other works were *Journal in Greece and Albania*, 1851, praised by Tennyson in his 'Lines to E. L.'; *Journal of a Landscape Painter in Southern Calabria*, 1852; *In Corsica*, 1870; *More Nonsense Rhymes*, 1871; and *Laughable Lyrics*, 1876. His *Letters* were ed. by Lady Strachey in 2 series, 1907 and 1911, and *The Complete Nonsense of Edward Lear*, by Holbrook Jackson in 1947. See W. B. O. Field, *Edward Lear on my Shelves*, 1933, and A. Davidson, *Edward Lear, Landscape Painter and Nonsense Poet*, 1938.

**Lease-Lend**, see **LEND-LEASE**.

**Leasehold**, in law a chattel (q.v.) real, not, strictly speaking, an estate in land nor properly involving tenure; though the phrases 'estate for years' and 'leasehold tenure' are common. L.s are all of one kind, and, being personality (and not real property), the tenant, for however long the term, is 'possessed,' not 'seised.' The very name term implies a definite date of ending, as opposed to the indefinite end of freehold estate by death or failure of heirs. L.s are (a) tenancies from year to year, (b) leases for years, (c) long terms. Tenancy from year to year arises (i) by operation of law, on demise at ann. rent without express term, or (ii) by act of parties under verbal or written lease. It is determined by half a year's notice, which may be a 'customary half-year,' i.e. from one quarter-day to the next, but always so as to end with the current year of the tenancy. Lease for years arises mostly by express demise, which, if for more than 3 years and not at a rack rent, must be in writing. Lease for years determines by efflux of period; or on fulfilment of a condition (if any), e.g. lease to B for 60 years, if he shall so long live; or to C for 21 years, provided that on non-payment of rent, or breach of covenant, the lessor may re-enter, etc. It may also determine by merger and by surrender in fact (deed) or in law (accepting a new lease on different terms before the old one expires). As to covenants on leases see **COVENANT**. Long terms are chiefly (1) terms of 100 to 1000 years, formerly created by way of mortgage as security for an advance; (2) terms created in the 16th cent. as a device for making a personal interest in land as valuable as fee simple; (3) terms in settlements (q.v.) limited to trustees as security for raising portions, jointures, and annuities (q.v.). These are the most frequent and the most important. No rent is reserved on (1) or (3), and on (2) only a

nominal or 'peppercorn' rent, if any. On (3) there are, as a rule, no covenants. See also LANDLORD AND TENANT.

**Leasehold Enfranchisement.** From the end of the 18th cent. and onwards the practice of leasing land for 99 years for building purposes became fairly general in London and other urb. areas. The extraordinary increase in the built-over area in London resulted in an enormous increase in the value of sites, and in many cases an equally extraordinary increase in the value of the premises for business and residence. The Bedford and Westminster estates in London are typical instances. When in the eighties and nineties of last cent. leases fell in, the ground landlords required extremely heavy payments for renewals. Goringes in Buckingham Palace Road was an instance much discussed at the time. As a matter of public interest, it was mooted that freeholders should not be permitted to lease land in this fashion, and that existing leases should be converted into freeholds at a fair valuation, much in the same way as under the Law of Property Acts, 1925, copyholds have ceased to exist. Up to the present nothing has been achieved in this direction, but the Landlord and Tenants Act, 1954, has provided tenants of business premises with some security of tenure.

**Least Action, see ACTION.**

**Least Squares,** principle involved in Gauss's theory of errors, stating that in a large number of independent measurements of a quantity, the most probable value is that for which the sum of the squares of the errors of individual measurements is a minimum. The theory does not deal with (1) mistakes, which should be eliminated by proper checks, (2) constant errors, having the same effect on all the measurements (e.g. a chain being too long), (3) systematic errors, which may vary on sign (see ERRORS). When these are eliminated from a series of equally accurate observations, it is found that the observed values still differ. The problem is to assign a definite value to the quantity being measured and to assess the accuracy. If  $x_1, x_2, x_3 \dots x_n$  are the  $n$  observed values of a quantity whose most probable value is  $x$ , the residual errors are  $x_1 - x = v_1, x_2 - x = v_2 \dots x_n - x = v_n$ . Assume that (1) each of these is due to a number of factors, whose cause and action is unknown, (2) each is as likely to be positive as negative, (3) small errors are more likely than large ones and there is a finite limit to the magnitude. Dividing these 'casual' errors into groups according to magnitude and sign: those between 0 and 0.1, between 0.1 and 0.2, . . . between 0 and -0.1, between -0.1 and -0.2, etc., plot the numbers of errors in each group in a graph. The result is a curve which becomes the more like Fig. 1 the larger the number of observations. Gauss gave to the curve the analytical expression

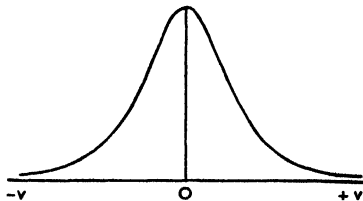
$$o(v) = \frac{h}{\sqrt{\pi}} e^{-h^2 v^2} \quad \text{where } h \text{ is a constant}$$

depending on the precision of measurement. The number of errors in a group between  $v$  and  $v + dv$ —or the probability of an error occurring between these limits

—is  $o(v)dv = \frac{h}{\sqrt{\pi}} e^{-h^2 v^2} dv$ . If the probability (q.v.) of an error  $v_1$  is  $\propto e^{-h^2 v_1^2}$ , the probability of the errors  $v_1, v_2 \dots v_n$  occurring in a set of measurements is  $e^{-h^2 v_1^2} \times e^{-h^2 v_2^2} \times \dots e^{-h^2 v_n^2} = e^{-h^2 \sum (x_i - x)^2}$ . If  $x$  is the most probable value of the quantity, this probability must be a maximum (see MAXIMA AND MINIMA),

or  $\sum (x_i - x)^2$  must be a minimum. Differentiating,  $2 \sum (x_i - x) = 0$ , or  $\sum x_i - nx =$

$0, x = \frac{1}{n}(x_1 + x_2 + \dots + x_n)$ . Thus the most probable value is the arithmetic mean, A.M., and the sum of the squares of the errors is a minimum. The average



error,  $\sigma$ , is the A.M. of the actual errors without regard to sign, the mean square error,  $\mu$ , is the square root of the mean of the squares of the errors, the probable error,  $\rho$ , is such that it is as likely to exceed it as not to reach it. The probability of an error between  $-\rho$  and  $+\rho$

must then be  $\frac{h}{\sqrt{\pi}} \int_{-\rho}^{+\rho} e^{-h^2 v^2} dv$ , which

gives  $\rho = \frac{1}{h} \times 0.4769$ . The following relations exist for large numbers of observations:  $\rho = 0.6745 \times \mu = 0.8453 \times \sigma$ . If  $\{v^2\}$  is the sum of the squares of the residual errors in  $n$  observations, the  $\rho$  of a single observation is  $0.6945 \sqrt{\{v^2\}/(n-1)}$  and the  $\rho$  of the A.M. is  $0.6745 \sqrt{\{v^2\}/n(n-1)}$ . When sev. sets of independent measurements of a quantity are made, a weight is attached to each result according to its estimated accuracy or its probable error. In calculating the mean of the results, each is multiplied by its weight and the sum of weighted results is divided by the sum of the weights. The principle of L. S. also applies to 'conditioned' observations of quantities subject to some rigid relation, as the sum of the angles in a geometric figure, and to 'indirect' observations, where a quantity is derived from measurements of related

quantities. See D. Brunt, *Combination of Observations*, 1926, and D. Clark, *Plane and Geodetic Surveying*, vol. ii, 1948.

**Leather** (word common to all Teutonic languages; Ger. *leder*; Dutch *leer* or *leder*; Swedish *lader*; Welsh *llaren*), name given to hides and skins in which the original fibrous structure is left more or less intact and which have been rendered impetrable by treatments known as tanning. Any hides or skins can be turned into L. but the most usual are those from cattle, calves, sheep, goat, deer, pigs, peccaries, horses, seals, snakes, lizards, crocodiles, and ostriches. The term hides refers to the skins of larger animals such as horses and cattle, and skins to those of smaller animals such as sheep and goats. The wool or hair is commonly removed but sheepskins, and less often seal and calfskins, may be dressed with the wool or hair left on.

The skin consists of 3 main layers—on top, the epidermis containing the colouring matter and the hair roots, next the corium or true skin, and then the adipose or hypodermic tissue. The corium, which alone is of use to the tanner, principally consists of a grain layer and a thicker fibrous flesh layer mainly made up of bundles of collagen fibres, which in turn are bundles of finer structures known as fibrils.

**Pre-tanning processes.** Hides and skins first arrive either fresh or cured by drying or salting. Fresh skins are simply cleaned but cured skins must be soaked to restore the moisture and if necessary remove the salt. The next stage is to remove the epidermis and the fatty tissue and is the object of the process known as 'liming.' This destroys the epidermis, loosens the hair, swells the fibres and fibrils, and softens and loosens the adipose tissue and the mucous matter between the fibres, and can take up to about 3 weeks; in general the shorter the period the tighter the grain and the L. The hides or skins are immersed in pits or drums containing a liquor of milk of lime, caustic soda, a mixture of these two, or a mixture of milk of lime, sodium sulphide, and soda ash. Where the hair or wool is to be recovered it is first loosened by painting the flesh side with a paste consisting of lime and sodium or arsenic sulphide or, as is sometimes done with sheepskins, by 'sweating' or suspending in a humid atmosphere. The hair or wool and the adipose tissue are removed by machine or by hand scraping.

After liming stout hides and skins may be split into two or sometimes more layers known as grain and flesh splits. The various parts of a cattle hide vary considerably in thickness and a hide is normally cut or 'rounded' into portions known as the butt or back, the shoulder and the bellies. The hide or skin is now delimed with a weak acid solution to a varying extent depending upon the amount of stretch or pliability required in the finished L.; in general the greater amount of deliming the more stretch there is in the L.

If a pliable L. is wanted the hide or skin is puered or bated, which consists of digesting and loosening by means of enzymes or bacteria, unwanted parts of the skin known as the scud and comprising the residual hair roots, short hairs, pigments, epidermis, lime soaps, grease, and degraded mucous filling. Simultaneously by means of a salt incorporated in the bate deliming is carried a stage further and the two actions have the combined effect of opening up the fibre structure prior to tanning. The scud is removed by machine or by hand.

Sheepskins and skins that are to be chrome tanned are then pickled in a salt-sulphuric acid solution. Pickling preserves the skin and pickled sheep pelts are shipped in barrels, for instance, from New Zealand to all parts of the world. If large amounts of natural grease remain in the skin this grease must be removed by pressure or solvents. After this the hide or skin is ready for tanning.

**Tanning.** Vegetable substances such as barks of trees, shrubs, nuts, etc. (vegetable tanning), mineral salts such as basic chromium salts (chrome tanning) or alum (alum tanning), fish oils such as cod oil (oil tanning or dressing), formaldehyde, sulphur and combinations of these materials (combination tanning) all have the power to tan the hide or skin. Vegetable is the oldest and still probably the commonest method. Originally oak bark was used but other products have now largely taken its place; these include valonia, chestnut, myrabolans, sumac, mimosa, quebracho, gambier, avurambark, babool bark, and extracts made from these and other woods. Tanning is carried out in pits, rotating drums, or special wooden vats known as paddles and normally takes from 2 or 3 days to 3 weeks according to the hide or skin and the type of L. required, although it may take as long as 2 years. To obtain penetration the hides or skins are treated first with weak liquors and the strength is gradually increased.

Chrome tanning is rapidly gaining in popularity, particularly where lightness, flexibility, light colour, and resistance to heat are wanted. The process consists of treating the pickled hides or skins with a solution of a chrome salt (normally the sulphate or chloride) gradually increasing the concentration of the salt and finally basifying it until tannage is complete. Only a basic chrome salt will tan a hide or skin.

In alum tanning the skins are usually treated with alum, flour, salt, and egg yolk, and the resultant L. is white, very stretchy, strong, and tough, but will not withstand soaking in water.

Oil tanning consists of alternately treating the de-limed skins (usually flesh splits of sheepskins) with fish oils and hanging them up in a heated room to allow the oil to oxidise. After this has been done a number of times the skins are repeatedly piled to develop heat and spread out to cool. Oil tanning is used mainly to produce chamols L., which can also be

made by tanning with a combination of formaldehyde and fish oil.

L.s that have been first vegetable tanned and then chrome tanned are known as semi-chrome, and L.s that have been chrome tanned and then vegetable tanned are known as chrome retan. Recently some synthetic tannins, or syntans, have been developed.

**Dressing.** After tanning, the hide or skin becomes L. (crust or rough tanned in the case of vegetable tanned, or in the blue in the case of chrome tanned) but needs to be finished or dressed according to its final purpose. This might involve a number of processes such as evening the thickness, treating with oil or grease, colouring, softening, rolling, correcting surface faults, developing the grain, superimposing another pattern, polishing, and even water-proofing. For instance, sole L.s, i.e. L.s for shoe soles, have little further treatment beyond levelling, rolling, and brushing, but upper and other L.s may go through practically all the dressing processes.

Usually after tanning the L. is dried and sorted and the first dressing operation is to wet it back and shave it on the flesh side to level substance by means of a machine with a rapidly revolving bladed cylinder; this also cleans off any surplus flesh. It is often retanned to modify its properties and/or treated with oil or 'fat liquored' to soften it. Colouring is done by dyeing in drums or paddles with natural or coal-tar dyes, by brushing or spraying with dyes or pigments, or by both dyeing first and pigmenting later. After the L. has been retanned, fat liquored, or drum dyed, it is dried under heat and tension by toggling on frames, nailing on boards, or pasting on glass. The L. can be mechanically softened by staking or densified by rolling. The grain surface may be fluffed or buffed to remove small faults or may even be completely removed, as is often done with, for example, gloving L.s finished on the flesh side as a suede. Some L.s are dressed so as to reveal the natural grain and surface markings to preserve the distinctive character of the L. The natural grain can be brought into prominence either by using an astringent tannage that causes the grain layer to shrink or by a special process involving folding the L. either by hand or by machine (boarding), morocco, levant, levant seal, pin seal, and Niger goat are common examples of such L.s. Boarding also produces the square shaped and natural croases in such L.s as box and willow calf. L. is given a polished surface by treating it with a suitable glazing season and ironing it, plating it (that is, pressing it with a highly polished plate), or glazing it, which consists of drawing a polished glass, stone, or metal roller rapidly across its surface. When the dressing operation consists principally of incorporating large amounts of grease into the L. it is known as currying and the resultant L. as curried L.

From this it can be seen that L. can be modified very greatly according to the

final purpose for which it is intended. Shoe and clothing L.s, for instance, can be treated to make them water repellent, gloving L.s to be washable so that the colours do not run, and bookbinding L.s to be acid and ironfree for long life under storage.

L. is used for a tremendous range of products such as the uppers, linings, and soles of shoes, gloves, clothing, belts, hats, upholstery, luggage, handbags, other L. goods, bookbinding, driving belts, pickers, roller covers in spinning-machines, gas-meter diaphragms, bellows, organs, gaskets, washers, and oil seals, and for cleaning, wrapping, and even petrol filtering. Most types of hides and skins are used in L.s for shoes and L. goods; but the majority of upholstery and luggage L. is produced from split hides, and gloving and clothing L. from sheepskins.

**Leather-jackets, see CRANE-FLY.**

**Leathercloth,** cotton or linen fabric treated with a solution of pyroxylin. The solvents usually employed are a mixture of alcohol and amyl acetate or one of wood spirit, acetone, and amyl acetate. An insoluble dyestuff is added to the solution, and after the material has been coated it is run through a machine with a pattern or 'grain,' which is impressed on the fabric. The modern method is to coat the fabric with one of the vinyl plastics, such as polyvinyl chloride (P.V.C.).

**Leatherhead,** par. and tn of Surrey, England, 3 m. from Epsom, on the R. Mole. There are light industries, and agriculture is carried on. Pop. 8850.

**Leathers, Frederick James, 1st Viscount** (1883- ), Brit. industrialist, who was a gov. adviser on shipping and transport problems in both world wars. He was minister of war transport, 1941-5, and from 1951 to 1953 was secretary for the co-ordination of transport, fuel, and power. He was made a baron, 1941; viscount, 1954.

**Leatherwork.** Of recent years the art of creating goods from leather has become increasingly popular as a hobby. Leather is pleasant and easy to handle, and a minimum of tools and very little skill are required to produce useful and decorative articles. L. falls roughly into 3 classes. The first, and nowadays probably the largest, class is that which concerns itself with the making of hand-bags, purses, and holdalls. There are many leathers which can be used for this purpose, the most popular being calf, pigskin, cowhide, and embossed sheepskin. The simple basic tools required for hand-bag making are a good knife, steel ruler, cutting board, awl, and a 6-way plier punch. The materials for an average thonged hand-bag consist of: (a) Leather (usually sold by the square foot). Skins with holes and blemishes can be used but care must be taken that the required pieces can be cut out by avoiding these faults. (b) A skiver (grain split of a sheepskin) or lining leather. The skiver is attached to the leather with paste, and a press is used for drying. (c) Thonging. This is made in

leather or plastic. (d) Glue. (e) A fastening. There is a wide variety obtainable: clips, press-studs, buckles, etc. If press-studs are used a special fixer can be purchased. The process of making a hand-bag consists of placing the pattern on the leather and skiver, cutting out, pasting them together, then sewing the bag by threading the thonging through a series of holes made by a plier punch. The edges of the leather which are to be punched and thonged are glued together and held in place with bull-dog clips before being punched. Accuracy, combined with practice, is needed to ensure that holes are a uniform distance apart, and to keep the stitches at an even tension. A stitch marker can be used if necessary.

The second class of L. is artistic L. This embraces tooled and decorated leather, modelled, appliqué, hammered and punched leather, blind tooling and gold tooling. This type of work is more specialised. It is particularly suitable for book covers and finely modelled bags, pouches, comb cases, etc. The best skins for general artistic decorative work are calf or cowhide; calf is very malleable. Dull-surfaced cowhide is used for modelling. The tools required by beginners are also simple and few: a good knife, tracer, steel ruler, set-square, punch, and modelling tools.

The third category in amateur L. is glove-making. Hand-made gloves are always popular for many reasons, one of the most important being that individual patterns can be used. The most popular leathers for gloving are Cape gloving, Persian, nappa, imitation peccary, gloving lamb and sheep skins, coloured and white doeskins, chamois leather, and gloving shearling and lamb skins with the wool on. A good pattern, a really sharp pair of scissors, needles, and good strong thread are adequate equipment for simple types of gloves. The secret of glove-making lies in the cutting and in the correct method of stitching. The 'stretch' must always be across the width of the hand, and it is essential to know where the stretch of a gloving skin lies when laying on the pattern. See Betty Dougherty, *Four Leatherwork*, 1947; F. R. Smith, *Leatherwork*, 1949; R. L. Thompson, *Leathercraft*, 1949.

**Leaven** (through Fr. *levain*; from Lat. *levamen*, solace; *levare*, to lift up), substance which produces fermentation; also an underlying element or influence which produces a subtle change in anything. To the Hebrew the word suggested corruption, hence leavened bread was not permitted in sacrifices. At the Feast of the Passover or of Massoth unleavened bread was eaten. In the N.T. the kingdom of heaven is compared to L. (Matt. xiii. 33) signifying a good influence. The idea of corruption is suggested in the reference to the L. of the Pharisees in Matt. xvi. 6.

**Leavenworth**, co. seat of L. co., E. Kansas, U.S.A., on the R. Missouri, 20 m. NW. of Kansas City. Fort L. to the N. is seat of command and general staff school. Coal is mined, and machinery

engines, bricks, furniture, flour, woollens, mattresses, and canvas goods are manuf. Sherman air force base is near by. Pop. 20,579.

**Leavis, Frank Raymond** (1895- ), critic, Cambridge. Educ. at Perse School and Emmanuel College there, he was elected a fellow of Downing College in 1935, and in the following year became a lecturer in English. Owing to the unconventional views put forward in his works, they have aroused a good deal of controversy. They include *Mass Criticism and Minority Culture*, 1930, *New Bearings in English Poetry*, 1932, *Tradition and Development in English Poetry*, 1936, *The Great Tradition: George Eliot, James, and Conrad*, 1948, *The Common Pursuit*, 1952, and *D. H. Lawrence, Novelist*, 1955.

**Lebanon**, co. seat of L. co., SE. Pennsylvania, U.S.A., 25 m. from Harrisburg. Its manufs. include iron and steel products, machinery, stoves, clothing, chemicals, textiles, food products, and paper boxes; it also has railroad shops. Pop. 28,150.

**Lebanon, or Lebanese Republic**, state in the Near E., bounded by Syria on the N. and E., Israel on the S., and the Mediterranean on the W. It consists mainly of the parallel mt ranges of the L. and the Anti-L. divided by the Bekaa valley. Area 3400 sq. m.; pop. 1,400,000. There are slightly more Christians than Muslims and more than half the Christians are Maronites (q.v.). The prin. tns are Beirut (cap.), Tripoli, Saida (Sidon), and Sur (Tyre). The country is mainly agric., but iron and lignite are mined on a small scale. The hist. of L. can hardly be separated from that of Syria until 1864, when owing to its Christian majority it was made a privileged prov. of the Ottoman Empire, with a Christian governor supervised by the European powers. The French were given a certain precedence. With the outbreak of war in 1914, the Turks abolished the special regime. With the rest of Syria, L. came under Fr. mandate after the First World War; in 1920 it was proclaimed a state with its own assembly and president. It continued, however, under Fr. control, but in 1936 was promised complete independence in 1939. This was not granted and in 1940 L. was held by the Vichy administration. In 1941 it was captured by British forces and placed under the control of Gen. de Gaulle. Brit. and Fr. troops were withdrawn in 1946 and L. was now completely independent for the first time in its hist. As a member of the Arab League, L. took part in the war against Israel in 1948. A few villages were lost to Israel, but these were restored by the armistice agreement of Mar. 1949. L. is a constitutional rep. with a president and an assembly of 44 members. It is a member of the U.N. L. is generally considered to exercise a moderating influence on her fellow members in the Arab League, and her attitude towards the W. powers remained relatively friendly during the Suez crisis (1956) and subsequent events.

**Lebanon, Mount** (*Libanus*, the White Mt.), mt chain from which the rep. of L. derives its name, parallel with the Mediterranean coast with spurs projecting to the sea; the Jebel-Libuan or Jebel-el-Gharbi of the Arabs. It stretches from the Nahr-el-Kebir, near Tripoli, and Homs to the Litany (anct *Leontes*), near Tyre, and the range is continued by the hills of Palestine, the biblical mts of Naphtali, Ephraim, and Judaea. To the E. is the Anti-Libanus range (Jebel-esh-Sharki), with El-Boka'a (anct *Coele-Syria*), a narrow, fertile valley, between. The average height of L. is 7000 ft, its chief peaks, Dahr-el-Kodib and Jebel-Makmal, being



E. Buchanan

## CEDARS IN LEBANON

about 10,000 ft. The formation is limestone, sandstone, and basalt. Only a few groves of the once noted cedars now remain. The vills. on the slopes of L. are favourite summer resorts for the people living in Beirut. See J. Eddé, *Géographie Liban-Syrie*, 1941, and A. K. Hourani, *Syria and Lebanon*, 1945.

**Lebbeke**, tn in the prov. of E. Flanders, Belgium, 15 m. NW. of Brussels; engaged in agriculture and manuf. of furniture and lace, in tanneries and oil-mills. Pop. 12,500.

**Lebda**, see LEPTIS.

**Le Bel, Joseph Achille** (1847-1930), Fr. chemist who shares with J. H. van't Hoff, a Dutchman, the honour of having originated an important theory of the arrangement of atoms in space.

**Lebensraum, or Living-space**, slogan of neo-Ger. imperialism, in use before the First and Second World Wars. The word really denotes two different things: (a) the alleged over-pop. of Germany in comparison with her arable soil—whence the need for territorial expansion; (b) the Ger. claim to control various neighbouring zones in the E., SE., N., and W. of Europe—a claim based on strategic or economic interests. Before 1914, and in the early inter-war period, L. concentrated on a demand by Germany for, firstly, more colonies, and later for a return of the colonies taken from her after the First World War.

By 1939, however, Germany no longer

regarded herself as overcrowded (if she ever had), and Hitler's use of the term was by this time largely restricted to an extension of Germany's living-space in Europe alone.

**Leblanc, Nicolas** (1742-1806), Fr. chemist who invented an important method of manufacturing washing soda from common salt. This method is now obsolete but was worked for over a cent. L. was ruined by the revolution and finally committed suicide.

**Le Blanc**, Fr. tn, cap. of an arron., in the dept of Indre, on the Creuse. It has an important agric. trade. Pop. 6700.

**Lebœuf, Edmond** (1809-88), marshal of France, b. Paris. He entered the army in 1832, and after service in Algeria was made colonel. He directed the Fr. siege operations around Sevastopol in the Crimean war and was made brigadier-general. He rose to be commander-in-chief of the artillery and served with distinction at the battle of Solferino. In 1869 he became minister of war and the following year marshal. Before the Franco-Ger. war he claimed France to be in perfect readiness, so that he was largely blamed for the disasters of his country. After resigning he fought bravely at Noisseville and Gravelotte, and was taken prisoner at Metz.

**Lebork** (Ger. *Lauenburg*), tn of Poland, in Gdańsk prov., on the Leba, 40 m. WNW. of Gdańsk (q.v.). It was founded in the 14th cent. by the Teutonic Knights (q.v.), and passed to Brandenburg in 1657. It has textile and foodstuff industries. Pop. 12,000.

**Le Bossu, René** (1631-80), Fr. writer and critic, b. Paris. He joined the canonry of St Genevieve in 1649, and taught the humanities in various schools. His *Traité du poème épique*, 1675, won for him a European reputation. It was trans. into English by 'W. J.' in 1695, and there was a later version in 1719. Its thesis was that the subject should be chosen before the characters, and the action arranged independently of them: it was known to Dryden, Addison, and Pope. See memoir by Le Courayer, prefixed to the 6th ed. of the *Poème épique*.

**Lebrat**, see ALBRET.

**Lebrija, Elío Antonio de** (1444-1522), Sp. writer, b. Lebrija, Andalusia. For 20 years he taught rhetoric at the univ. of Salamanca and then at Alcalá. He is especially remembered as one of the collaborators on the Complutensian polyglot Bible. He wrote numerous works on languages, mathematics, theology, law, hist., and archaeology, as well as Sp.-Lat. and Lat.-Sp. dictionaries, and, in 1492, the first important Sp. grammar.

**Lebrija** (Rom. *Nebrija*), Sp. tn in the prov. of Sevilla, with anct walls, a Moorish castle, and an interesting church, formerly a mosque. It trades in cattle, grain, wine, and oil. Pop. 17,000.

**Lebrun, Albert** (1871-1950), Fr. statesman and President of France, b. Mercy-le-Haut, Meurthe-et-Moselle. After being a mining engineer and prof. he became a deputy of the moderate right in 1900. He

was minister of colonies during the Agadir incident (q.v.). In 1932 he became President of the third rep., averting the 1934 crisis of the Paris riots by calling a national gov. In 1940 his authority was superseded by that of Pétain (q.v.), and he was arrested by the Germans in 1943. In 1944, after his release, he retired from public life.

**Le Brun, Charles** (1619-90), Fr. historical painter, pupil of Vouet. He designed many of the decorations at Versailles (1679). In 1648 he helped found the Academy, estab. the Fr. school at Rome, became court painter to Louis XIV, and director of the Gobelins manufactory (1660). His art was devoted entirely to the glorification of the Grand Monarque. His works include 'Massacre of the Innocents,' five pictures illustrating the hist. of Alexander (1661-8, in the Louvre), 'The Family of Darius,' and 'The Repentant Magdalen.' See Blanc, *Histoire des Peintres*, 1849-75, and Bayle, *Historical and Critical Dictionary*, 1696; also lives by Genevay, 1885, and Jouin, 1890.



W. F. Mansell

ELISABETH VIGÉE LEBRUN  
(Self-portrait.)

**Lebrun, Marie Louise Elisabeth (née Vigée)** (1755-1842), Fr. portrait painter. b. Paris. She painted her first portrait of Marie Antoinette, 1779, and was admitted to the Academy, 1783, with 'Peace Bringing back Plenty.' She travelled much in Europe. Her portraits include Lady Hamilton, Mme de Staël, herself and her daughter, J. Vernet, Lord Byron, the Prince of Wales, and Marie Antoinette and her 3 children. She pub. her *Souvenirs* about 1835. See also Nolhac, *Vigée Le Brun*, 1908.

**Le Caron**, see BEACH, THOMAS MILLER.  
**Le Cateau**, see CATEAU, LE.

**Lecco**: 1. Prov. of Italy, in E. Apulia (q.v.). It is the S. part of the 'heel' of Italy, and is mainly a great plain, bordered on the E. by the Adriatic and on the W. by the Gulf of Taranto (qq.v.). There is some high land in the SE. The prin. tns include L. and Copertino (qq.v.). Area 1090 sq. m.; pop. 644,000. See also 'ALABRIA.

2. (anc. Lupiae) It. tn, cap. of the prov. of L., 86 m. SE. of Bari (q.v.). It has Gk remains, and some fine baroque buildings, including a cathedral (1670) and a bishop's palace. There is a trade in textiles, wine, oil, and tobacco, and manufs. of papier-mâché goods. Pop. (com.) 66,200.

**Lecco**, It. winter and tourist resort in Lombardy (q.v.), on the E. arm (called the *Lago di Lecco*) of Lake Como (q.v.). Textiles and metal goods are manuf. Pop. (tn) 15,600; (com.) 42,400.

**Lech**, riv. of Austria and Germany, which rises 10 m. E. of Bludenz, in Vorarlberg (qq.v.), and flows NE. and N., past Augsburg, to join the Danube (q.v.) E. of Donauwörth (q.v.). Length 177 m.

**Lecky, William Edward Hartpole** (1838-1903), historian and philosopher; b. near Dublin, his family being of Scottish origin. Educ. at Armagh School, Cheltenham, and Trinity College, Dublin. He attributed much of his success to his study of the works of Bishop Butler, Hobbes, Bossuet, Whately, and Buckle. His earliest pub., *Religious Tendencies of the Age*, 1860, revealed a spirit of tolerance and a liberal outlook, as also did his *Declining Sense of the Miraculous*, 1863, which work later formed the early chapters of his *History of Rationalism*, 1865. This latter book put L. in the front rank as an author who knew how to present hist. and philosophy with unity of conception, power of thought, and a method of cultural evolution. L. is nowadays best remembered for his *History of England in the Eighteenth Century*, one purpose of which was to refute what he described as the anti-Irish calumnies of Froude. The 8 vols. were pub. between 1878 and 1890 and were described by Lord Acton as 'fuller of political instruction than anything that had appeared for a long time.' The work estab. L. as an authoritative and impartial historian, thorough in research, and able to present summaries and deductions in philosophical language and with the soundest judgment. Other works include *Leaders of Public Opinion in Ireland*, 1861 (revised, 1903), *Democracy and Liberty*, 1896, *The Map of Life Conduct and Character*, 1899, and *Historical and Political Essays*, 1908. He was Unionist M.P. for Dublin Univ. in 1895 and 1900. See memoir by Mrs L., 1909, and life by J. J. Auchmuty, 1946.

**Leclair, Jean-Marie** (1697-1764), Fr. violinist and composer. b. Lyons. Becoming a ballet master at Turin, he studied the violin under Somis there. He went to Paris in 1728 and played with much success at the Concert Spirituel and at court until 1736, when he devoted himself to composition and teaching. He



wrote chamber music especially for his instrument, and an opera, *Seylla et Glauceus*.

**Leclanché Cell**, see under CELL.

**Le Clerc, Jean** (1657-1736), Swiss theologian, b. Geneva. After completing his studies he became a prof. at the Remonstrant seminary at Amsterdam, 1684. Among his numerous works are *Bibliothèque universelle et historique*, 1686-93, *Bibliothèque choisie*, 1703-13, *Ars Critica*, 1712-30, and *Bibliothèque ancienne et moderne*, 1714-26.

**Le Clerc, Sébastien** (1637-1714), Fr. designer and engraver, b. Metz. In 1608 his *Géométrie pratique* in 80 plates attracted the notice of Colbert, who procured for him a post in the Gobelins tapestry manufactory. Le C. also pub. a number of scientific treatises and a *Traité d'architecture*, 1714. See C. A. Jombert, *Catalogue raisonné de l'Œuvre de Sébastien Le Clerc*, 1774.

**Leclerc de Hauteclouque, Philippe** (1902-1947), Fr. soldier, b. of an old Picardy family, his true name being Philippe, Vicomte de Hauteclouque. Passed out of St Cyr, 1924. At the outbreak of war in 1939 he was a captain. Wounded and taken prisoner, he escaped to England and offered his services to Gen. de Gaulle, adopting the name of L. to avoid reprisals against his wife and family; and at the end of the Second World War he changed his name to L. de H. Sont by de Gaulle to the Camerouns, he played a prominent part in setting up the new regime under the Free Fr. movement. His first great military exploit was the capture of the Kufra oasis (q.v.) during Gen. Wavell's offensive, but he had to retreat when the British retreated. The march of his motorised column from Fort Lamy (q.v.) in Fr. Equatorial Africa to join the Eighth Army (q.v.) at the Mareth line was magnificent achievement and one which had great moral value to France. Its *éclat* should not, however, obscure the fact that it was the outcome of organising power and immense labour, necessitating the transport of vehicles and heavy stores up the Congo for a distance of 1000 m. After the N. African campaign he came to England to raise and train the famous Fr. Second Armoured Div., and indeed it is as a brilliant divisional commander that he will be remembered. His div. took part in the invasion of Normandy (1944) and made its spectacular dash to liberate Paris (24-5 Aug.). Later the div. joined the Fr. Army, which had landed in the S. of France from the Mediterranean, and were the first troops to enter Strasbourg (23 Nov.). For a time in 1945 L. was governor of Strasbourg. Later in that year he was sent to Fr. Indo-China as commander-in-chief, where his stern measures against the Viet Nam insurgents excited criticism in left wing quarters. He was killed on 28 Nov. 1947 in an aircraft accident in Fr. N. Africa, where he had been inspector of the forces of land, air, and sea since April 1947. His leadership and achievements did much to restore Fr. confidence in the glories of the

Fr. Army, which had suffered eclipse in 1940, and his reputation was enhanced by youth and charm (see *The Times*, 29 Nov. 1947). See *Le Général Leclerc vu par ses compagnons de combat*, Paris, 1948.

**L'Ecluse, Charles de** (1526-1609), botanist, of Artois, author of *Rariorum Plantarum Historia*, 1601, etc. Clusia (q.v.) was named in his honour.

**Lecocq, Charles** (1832-1918), Fr. composer, b. Paris, where he studied at the Conservatoire. His first operetta appeared in 1857, *Le Docteur miracle* (with which he won, at the same time as Bizet, a prize offered by Offenbach), followed by many others, notably *Fleur de thé*, 1868, *Les Cent Vierges*, 1872, and best known of all, *La Fille de Mme Angot*, 1872, produced in Paris and London, 1873, which was never equalled in his subsequent pieces, including *La Petite Mademoiselle*, 1879, *Le Jour et la nuit*, 1881, *Le Cygne*, 1899, and *Yella* (Brussels), 1908.

**Lecote de Lisle, Charles Marie** (1818-1894), Fr. poet, b. in the is. of Réunion. He settled in Paris in 1846. His first work, *La Vénus de Milo*, 1848, gained him many admirers, especially amongst the devotees of classical literature, and he produced his *Poèmes antiques*, which contain some of his best work, in 1852. These were followed by *Poèmes et Poésies*, 1855, *Le Chemin de la croix*, 1859, *Poèmes barbares*, 1862, *Les Erinnyes*, a tragedy after the Gk model, 1872, *Poèmes tragiques*, 1884, and *L'Apollonide*, 1888. Besides this he trans. Theocritus, Anacreon, the *Iliad* and *Odyssey*, Hesiod, Aeschylus, Horace, Sophocles, and Euripides. *Derniers poèmes* appeared posthumously, 1895. His poems had a great influence on the young poets of his time, and are marked by classic regularity and faultlessness of form. He played an important part in formulating the aims of the Parnassiens, and became their acknowledged leader. In spite of his gospel of impassiveness his poems express a pessimistic awareness of the transitoriness of things. He was made assistant librarian at the Luxembourg in 1873, and succeeded to Victor Hugo's chair at the Academy in 1886. See J. Vianey, *Les sources de Lecote de Lisle*, 1907, and *Les poèmes barbares*, 1935; P. Flottes, *Le poète Lecote de Lisle*, 1929; P. Jobit, *Lecote de Lisle et le mirage de l'île natale*, 1951.

**Le Corbusier**, pseudonym of **Charles-Edouard Jeanneret** (1887- ), Swiss-Fr. architect and writer on architecture; b. La Chaux-de-Fonds, Switzerland; was trained in Vienna, Paris, and in Berlin under Behrens (q.v.). He began independent practice in Paris c. 1922. At first his work consisted mainly of small houses. Later buildings: the Swiss Hostel in the Cité Universitaire, Paris, 1932; various exhibition pavilions; and the enormous block of flats known as the Unité d'Habitation, Marseilles, 1945-50, which accommodates 1600 persons.

He has also prepared town-plans for Moscow, the univ. city at Rio, Bogotá, Algiers, Ismir (Turkey), Saint-Dié, and Chandigarh—the cap. of the Punjab in

India. He has written sev. most important books on architecture and town-planning, especially *Vers une Architecture*, 1922, and *Urbanisme*, 1924. By these books, trans. into other languages and read all over the world, as well as by his own designs, he has influenced current architecture more substantially than any other modern architect, ever since he invented the doctrine that a house is 'a machine for living in.' Some of his ideas are impracticable and visionary; nevertheless his importance remains unchallenged.

He was the Fr. member of the Advisory Committee for the U.N. building in New York; and was awarded the R.I.B.A. Royal Gold Medal in 1953. See biography by M. Gauthier, 1943.

**Lecouvreur, Adrienne** (1692-1730), Fr. actress, b. near Châlons. After making her début in 1717 she was received into the Comédie Française, where she attained an extraordinary popularity. She was extremely fascinating, but her success was largely due to the naturalness of her delivery and her simple pathos. Her death was supposed to have been due to poison administered by a rival, the Duchess Bouillon. Scribe and Legouvé's play, *Adrienne Lecouvreur*, 1849, gives an account of her life.

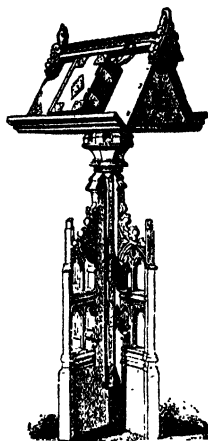
**Le Creusot**, see CREUSOT.

**Lectern**, originally set in the middle of the choir to support the antiphoners and graduals of the cantors, as it still is in monastic and collegiate churches. In Eng. par. churches, at the Reformation, it was moved out into the nave to be used as a stand for the Bible, at which the Lessons at morning and evening prayer should be read. A common type of L. is in the form of an eagle with outstretched wings.

**Lectionary**, book containing, or book prescribing, the portions of scripture to be read during the course of the year in the public services of churches and synagogues.

**Lectures** (Lat. *lectura*, from *legere*, to read; cf. Fr. *lecture*), a discourse before an audience or class upon a given subject, usually for the purpose of instruction; particularly a course of L. at univs. or colleges. Lectureships were endowed at most univs. with a view to spreading the opinions of the founder, at first restricted to theology or religion. In Commonwealth univs. lecturers are appointed to deliver courses; they are subordinate to professors. 'Univ. Extension' L. (given in centres away from the univ. to adult education classes) have been promoted by the univs. of Cambridge, Oxford, and London for 80 years. Other univs. in the U.K. and throughout the world have followed this example. There still remain many special L.; the topics treated range widely and they are promoted by a variety of organisations, often in memory of a distinguished member. Many univs. have special L. At Oxford, among others, are delivered the **Bampton** (theology), the **Sidney Ball** (economics), **Halley** (astronomy), and

**Herbert Spencer** (philosophy); at Cambridge, **Hulsean** (Christian theology), **Rouse Ball** (mathematics), **Scott** (physics), and **Alfred Marshall** (economics); at London, **Stamp Memorial** (economics), **Ethel M. Wood** (theology), and **Creighton** (hist.), among others. Gifford L. in natural theology are delivered at each of the Scottish univs.



AN OLD LECTERN IN BURY CHURCH, HUNTINGDONSHIRE

**Lecythis**, typical genus of Lecythidaceae. Over 60 species are known, mostly giant trees of Brazil, Venezuela, and the Guianas. The great woody pericarps of the various species are used by the natives as drinking vessels. The seeds are large and eatable but leave an unpleasant bitter taste. *L. ollaria*, the Monkey Pot, is the largest tree in the Brazilian forests. The bark is cut by the Indians into thin layers and used as wrapping for cigars or for cigarette wrappers. *L. zabucajo* is the source of palatable seeds, sold as Sapucaia Nuts (q.v.).

**Łeczycza**, tn of Poland, in Łódź prov., on the Bzura, 23 m. NNW. of Łódź (q.v.). It has a 12th-cent. Romanesque church, and has flour and brewing industries. Pop. 7000.

**Leda**, mythical daughter of Thestius and Eurythemis, and wife of Tyndareus, King of Sparta. Zeus visited L. in the form of a swan, and to him she bore Castor and Pollux (q.v.).

**Ledbury**, tn in Herefordshire, England, at the S. extremity of the Malvern Hills. Fine cider orchards and hop grounds are in its immediate neighbourhood. There is a fine timbered market house of 1633. Pop. 3689.

**Lede**, tn in the prov. of E. Flanders, Belgium, 12 m. SE. of Ghent. There is agriculture and the manuf. of linen, lace, tobacco, and chicory. Pop. 9300.

**Ledeberg**, SE. suburb of Ghent, Belgium, engaged in floriculture, cotton-mills, manufs. of machinery, chemicals, sugar, and dye-works. Pop. 11,600.

**Ledochowski, Mieczyslaw**, Cardinal Count (1822-1902), Polish ecclesiastic, b. Gorki, Galicia. He was educ. at Warsaw, finishing at Rome, where he was ordained in 1845. In 1865 he became Archbishop of Gnesen-Posen, and in 1876 was made a cardinal. He championed the cause of his religion against the gov., and suffered imprisonment in 1873 during the Prussian and Ger. *Kulturkampf*, on refusing to lay aside his office. Being released in 1876 he went to Cracow, but on being expelled from Austria went to Rome, finally resigning his archbishopric in 1885. In 1892 he was made prefect of propaganda.

**Ledru-Rollin, Alexandre Auguste** (1807-1864), Fr. politician, b. Fontenay. He was admitted to the Bar in 1830, and became well known as an extreme democrat. In 1846 he pub. *Appel aux travailleurs*, in which he advocated universal manhood suffrage. On the outbreak of the revolution in 1848 he became a member of the provisional gov., standing for the presidency, against Louis Napoleon, later in the year. In 1849 he tried to organise a revolution in Paris. His followers were easily dispersed, and he fled to London, returning to France after an exile of 20 years.

**Leduc**, tn in Alberta, Canada, about 20 m. S. of Edmonton. It was at L. that, in 1947, the first major discovery of oil was made during the surge of exploration that followed the Second World War. There are now a number of productive fields in the surrounding area extending more than 60 m. along the NE.-SW. trend of the Devonian reef formation. The recoverable reserves of the L. field are 230 million barrels, but the potential of the whole area amounts to sev. hundred million barrels. The same area also produces the bulk of Canada's natural gas.

**Ledward, Gilbert** (1888- ), sculptor, b. London, second son of Richard Arthur L., sculptor. He obtained the first Brit. School of Rome scholarship in sculpture, the R.A. travelling studentship and gold medal, both in 1913. In the First World War he was a lieutenant in the Royal Garrison Artillery. He designed, with H. Chalton Bradshaw, the Guards' Div. memorial on the Horse Guards Parade. He also designed war memorials in 5 Eng. tns and at Grahamstown (S. Africa), as well as the Marquess of Ormonde memorial in Kilkenny Cathedral, the Dean Spence memorial in Gloucester Cathedral, the Alfred Milner memorial in Westminster Abbey, and bronze statues of King George V. at Kampala, Uganda, 1939, and at Nairobi, Kenya, 1940. From 1926 to 1929 he was prof. of sculpture at the Royal College of Art. His statue-fountain in Sloane Square, London, 1953, won the medal of the Royal Society of British Sculptors for the best sculpture of the year.

**Ledyard, John** (1751-88), Amer. traveller, b. Groton, Connecticut. In 1776 he

accompanied Capt. Cook on his last voyage, on his return publishing a *Journal of the voyage with an account of Capt. Cook's death*. In 1786 he set out on an expedition to the Arctic regions, arriving at Irkutsk after a journey of great hardships, where he was arrested as a spy and forbidden to re-enter Russia. Returning to London, almost immediately he started on another expedition to the interior of Africa, but d. at Cairo.

**Lee, Ann** (1736-84), b. Manchester, left the Quakers at 22. After persecution as a religious eccentric she, with others, left for America in 1774 and founded the American Society of Shakers.

**Lee, Fitzhugh** (1835-1905), Amer. general, b. Clermont, Virginia. He served throughout the Virginian campaigns of 1862 and 1863, becoming major-general the same year, and led the last charge of the Confederates at Farmville in 1865. He was governor of Virginia, 1886-90, consul-general at Havana, 1896, and military governor of Havana and Pinar del Rio, 1899. He wrote *Robert E. Lee*, 1894, and *Cuba's Struggle Against Spain*, 1899.

**Lee, Frederick Richard** (1799-1879), landscape painter, b. Barnstaple. He became a student of the Royal Academy in 1818, and first exhibited in 1824. He was elected an academician in 1838. His works were chiefly of Eng. scenery, the cattle in many of them being painted by Sidney Cooper. Some of his pictures are 'The Cover Side' (dog, etc., by Landseer), 'Showery Weather', 'Evening in the Meadows', 'A River Scene' (all of which belong to the Tate Gallery, London), 'Near Redleaf', 'Gathering Seaweed', and 'Distant View of Windsor' (Victoria and Albert Museum).

**Lee, Henry** (1756-1818), Amer. soldier known to every Amer. schoolboy as 'Light-Horse Harry Lee', was b. near Dumfries, Virginia. He graduated from Princeton, and when the Amer. colonists began their war for independence served for a time under Washington. Later, given independent command of a mobile troop, he captured the fortress of Paulus Hook from the British, and then distinguished himself by his dash into the Carolinas. After the war had been won he became governor of Virginia, and took a leading part in suppressing the so-called whisky rebellion in Pennsylvania. In Congress he delivered the funeral oration on the death of Washington. He was the father of Robert E. Lee (q.v.), commander-in-chief of the forces of the S. Confederacy. See life by T. Boyd, 1931.

**Lee, Nathaniel** (c. 1653-92), Brit. dramatist, educ. at Westminster School and Cambridge. He produced his first play, *The Tragedy of Nero, Emperor of Rome*, in 1675. He next pub. *Sophonisba*, 1675, and *Gloriana*, 1676, but he made his reputation by *The Rival Queens*, a blank verse tragedy in 1677. Many others followed, his last being *The Massacre of Paris*, 1689. L. also collaborated with Dryden in *Oedipus*, 1679, and *The Duke*

of *Guise*, 1682. His works were collected in 3 vols., 1736. See R. G. Ham, *Onway and Lee*, 1931.

**Lee, Richard Henry** (1732-94), Amer. statesman, b. Stratford, Virginia, being a scion of an old Virginia family of Cavalier stock. He was educ. in England and returned to his country in 1752, having inherited large landed estates. He served in the Virginia legislative assembly and distinguished himself by leading the opposition to what he deemed the arbitrary acts of the Brit. governing authorities. He was a delegate to the first Continental Congress held in Philadelphia in 1774, and proposed the first and second addresses to the Brit. people. In the Congress of 1776 he introduced the resolutions which brought about the writing of the famous Declaration of Independence, mainly the product of his fellow Virginian, Thomas Jefferson. L. subsequently served a number of terms as congressman and senator.

**Lee, Robert** (1804-68), theologian, b. Tweedmouth, Northumberland. He was educ. at St Andrews Univ., and was minister of the old Groyfriars Church, Edinburgh (1843-68). He was an innovator within the Church of Scotland, and introduced stained-glass windows in 1857 and an organ in 1864. He pub. *The Reform of the Church in Worship, Government, and Doctrine*, 1864, as well as many other theological works and books of prayers.

**Lee, Robert Edward** (1807-70), Amer. soldier, perhaps the greatest commander the Amer. Civil War produced, and acknowledged by European military critics to be one of the greatest generals of modern times, was b. at Stratford, Virginia. The L. family, originating in Shropshire, was among the early settlers of Virginia. L. himself married Mary Custis, daughter of the adopted son of George Washington, so that the young couple really represented the very flower of S. aristocracy. Graduating second in his class at West Point Military Academy L. won rapid promotion, until by 1838 he was a captain in the engineers corps. He won high praise for his services during the siege of Veracruz, and was wounded during the storming of the heights of Chapultepec. The close of the war found him a colonel, and in 1852 he had command of the U.S. Military Academy. When the Civil war broke out he had much searching of heart. A lover of the Union and opposed to secession, he nevertheless felt that he owed his first allegiance to the state which had given him birth and so highly honoured his ancestors.

In May the Confederacy named 5 generals, of whom L. was only third on the list. He was without any command at first, being engaged as military adviser to President Davis and to superintend the defences of Richmond and the coast defences of Georgia and S. Carolina. However, the severe wounding of Gen. J. E. Johnston, his intimate friend and classmate, caused L. to be placed in charge of the troops defending Richmond. In a

brilliant 7 days' series of battles he defeated the Union troops and wrecked the Peninsular campaign of Gen. McClellan. Later he crossed the Rapidan R. and defeated Gen. Pope at Manassas. He made an ill-advised invasion of Maryland, and had to retreat across the Potomac. He gained brilliant victories at Fredericksburg and Chancellorsville (1863). In response to pressure from public opinion in the Confederacy, he marched his armies into Pennsylvania, thereby giving the S. hope that the war would be transferred to N. soil. The bloody battle of Gettysburg followed. Though successful the first day L. was defeated on the succeeding days, and retreated to Virginia. The closing years of the war, 1864-5, found L. pitted against Gen. U. S. Grant in an ever increasing numerical inferiority. Antietam was a drawn battle, but Cold Harbor was a victory for the Confederates. When Grant took Petersburg in April 1865, and Richmond fell a few days later, L. recognised the inevitable by surrendering to him at Appomattox Courthouse, Virginia, with his ragged and exhausted army of 28,302 men. He had to start life all over again, and his beautiful home at Arlington, overlooking Washington, had been expropriated. He accepted the presidency of Washington College, Lexington, Virginia, later to be known as Washington and Lee Univ. He d. there on 12 Oct. 1870. Between L. and Grant there was no bitterness. Great soldiers both, they recognised that each had done his duty as he saw it. L. was the greater strategist and the greater master of the arts of war. The wonder was how, with inferior numbers and supplies, he managed to keep his army intact and fighting for so long a period. Apart from his skill as a commander there was something about his personality that appealed to his men. See W. H. Taylor, *Four Years with General Lee*, 1878; A. L. Long, *Memoirs of Lee*, 1886; R. E. Lee (his son), *Recollections and Letters*, 1904; J. F. C. Fuller, *Grant and Lee*, 1933. See also lives by F. Lee, 1895; W. P. Trent, 1899; P. A. Bruce, 1907; G. Bradford, 1912; F. Maurice, 1930; D. S. Freeman, 1934; B. Moses, 1937; B. Davis, 1956; E. S. Miers, 1956.

**Lee, Sir Sidney** (1859-1926), biographer, b. London of Jewish parents. Educ. at the City of London School and Balliol College, Oxford, he became assistant editor of the *Dictionary of National Biography* in 1883, joint editor with Sir Leslie Stephen, 1890-1, and editor from 1891 onwards. L. contributed numerous articles, and wrote the memoir of Edward VII, 1912. Other works of his are *Stratford-on-Avon from the Earliest Times to the Death of Shakespeare*, 1885, *A Life of William Shakespeare*, 1898, *A Life of Queen Victoria*, 1902, *Elizabethan Sonnets*, 1904, *Great Englishmen of the 16th Century*, 1904, *Shakespeare's and the Modern Stage*, 1906, *The French Renaissance in England*, 1910, and *Principles of Biography*, 1911 (Leslie Stephen lecture at Cambridge). He was prof. of Eng. literature at E. London College, Univ. of

London, 1913-24, and dean of the faculty of arts in the univ. of London.

**Lee, William**, inventor, b. Calverton, Notts. Graduating from Cambridge he was ordained in 1582. About 1589, whilst holding the cure at Calverton, he invented the stocking-frame (see HOSE). This machine he later improved, and in 1598 produced silk stockings. The opposition of the hand knitters drove him abroad, and he d. in Paris.

**Lee of Fareham, Arthur Hamilton Lee**, 1st Viscount (1868-1947), soldier and politician, educ. at Cheltenham and the Royal Military Academy, Woolwich. He was prof. of strategy and tactics at the Royal Military College, Kingston, Canada, 1893-8, and Conservative M.P. for the Fareham div. of Hants, 1900-18. He was civil lord of the Admiralty, 1903-5, director general of food production, 1917-18, minister of agriculture and fisheries, 1919-21, and First Lord of the Admiralty, 1921-2. In 1921 he gave Chequers estate, Bucks, for a country residence for prime ministers. He was created viscount in 1922. His autobiography, *A Good Innings*, 1868-1940, was pub. in 1940.

**Lee**, dist. of London, in the N. of the bor. of Lewisham. There is a chapel built by Christopher Boone, and the Merchant Taylors' almshouses. The manor house, formerly a residence of the Earl of Northbrook, is now a public library. Pop. 21,000.

**Lee**, riv. in co. Cork, Rep. of Ireland, rising on the Kerry-Cork border, forming Lough Gougane Barra and Lough Allua and flowing through Cork co. into Cork harbour at Cork. With its tribs. it is an important centre of salmon and trout fishing. It is at present (1958) being developed for electrical power on a large scale between Macroom and Inniscarra.

**Lee**, term implying shelter or protection, usually from wind. It occurs principally in nautical expressions. Thus the *L. side* of a vessel (as contrasted with the windward side) is the opposite side to that on to which the wind is blowing—the sheltered side; *leeway* is the sideways drift from a desired course occasioned by wind; a *L. shore* is a shore to leeward of a vessel, and therefore a shore on to which the wind is blowing from the sea.

**Lee-Enfield**, Brit. rifle, see GUN.

**Leech, John** (1817-64), caricaturist, b. London and educ. at Charterhouse. In 1835 he began to exercise his gift of caricature, and in that year pub. *Etchings and Sketches by A. Pen.* In 1837 he illustrated Theodore Hook's *Jack Brag*, and 3 years later, with Leigh, produced a *Comic Latin Grammar* and a *Comic English Grammar*. In 1841 *Punch* was founded and L. became its prin. artist and cartoonist until his death. It is said that he contributed no less than 3000 drawings to its pages. This, however, did not by any means exhaust his activities, and he illustrated many books, including Dickens's *Christmas Stories*, a Beckett's *Comic History of England*, and the *Bon Gaultier Ballads*. More refined than Cruikshank he was scarcely second to that great master,

except in the range of his subjects, and gives a most valuable record of Victorian social life. See life by W. P. Frith (2nd ed.), 1891, and G. Tidy, *A Little About Leech*, 1931.

**Leeches**, see LITCHEI.

**Leeches**. Leech is the common name of any class of the Hirudinea, a class of elongated, worm-like animals belonging to the group Annelida. They can be distinguished by their sucking disks, which are situated at each end of the body if there are two, and at the posterior extremity if only one is present. They occur in all parts of the world, and generally live in water, frequenting streams, ponds, marshes, and the sea, but land L. are also found, for example, in Ceylon. Among aquatic forms the most familiar is the horse leech (*Haemopsis sanguisuga*), which inhabits freshwater ponds and ditches, and unlike some other L. has a few small teeth of blunted form. The medicinal leech is known by its minutely ringed body, and by the presence of an anterior and posterior sucker. Its mouth in the anterior sucker contains 3 teeth, which are minutely serrated so that each tooth looks like a saw. It is these teeth which make the leech so useful in blood-letting, for with these it makes a wound in the skin, having first fixed itself by the anterior sucker, and sucks the blood into its own body. L. are usually of a dark olive colour, with patches or spots on a paler ground, but bright green specimens also occur.

**Leeds, Thomas Osborne**, 1st Duke of (1631-1712), Eng. statesman, son of a Yorks baronet. In 1647 he succeeded to the title and estates, became M.P. for York in 1665, and an opponent of Clarendon, under Buckingham's leadership. He held various offices in the navy administration, and on his appointment as lord treasurer in 1673 was created viscount, becoming Earl of Danby in the following year. A strong partisan of the Church of England and its supremacy, he advised against Charles II's attempts to obtain toleration for Rom. Catholics. In foreign affairs he was an enemy of France, but his position was complicated by his keen royalism, and he must have been aware of the secret treaty of Dover. However, whilst obtaining Fr. subsidies, simultaneously he concluded a league with Holland for war against Louis XIV and was largely responsible for the marriage of Mary of York and William of Orange, 1677. His fall was engineered by Montagu, in 1679, an act of attainder being brought in against him by the Commons on various charges, including the raising of a standing army, corruption, and embezzlement. He was released from the Tower in 1684 and took the lead of the moderate Tories in the House of Lords against James II. He was one of the leaders who invited William of Orange to England in 1688. From 1690 to 1695 he was a chief adviser to William, regaining his post of lord treasurer and becoming Duke of L. in 1694. After this period his power declined, and a charge of bribery

was brought against him in 1895, but not pressed.

**Leeds**, city, parl. and co. bor. in the W. Riding of Yorks, on the R. Aire, 25 m. WSW. of York and an important railway centre. It is situated in beautiful country near the Yorks dales and the 'Brontë' land. It was made a co. bor. in 1889 and a city in 1893. It owes its modern development to its industries, being the seat of the Eng. woollen industry and noted for this manuf. for cents. Situated about the centre of the national railway system, and having communication with

employ some 15,500. Large as the woollen trade is it is rivalled by the engineering trade and the manuf. of iron, which includes both the casting of metal and the manuf. of machinery and employs some 15,000 persons. L. is an important centre for leather manuf., the printing trade, and furniture making; and among its other numerous industries are chemicals, soap manuf., coach-building, ferro-concrete construction, medicines, hairdressing apparatus, cardboard box-making, mineral waters, carpets, scientific instruments, cameras, jams and sauces, hats, brushes,



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#### LEEDS: ROUNDHAY PARK

Liverpool by the L. and Liverpool Canal and with the Humber by the Aire and Calder Navigation Canal, L. has valuable transport facilities, and the proximity of the great coal and iron-fields has also been a most influential factor in establishing its prosperity. The early hist. of L. is obscure; apparently its original name was Loidis and at the coming of the Normans it was an agric. vil. of 1000 ac. cultivated by 35 farmers. In later years, with the introduction of the art of weaving and the development of cloth manuf., L. gradually rose to a prominent place among the tns of England. The first royal charter, which formed the tn and par. into a municipal bor., was granted by Charles I in 1626.

To-day L. is the largest ready-made clothing centre in the world, giving employment to well over 55,000 persons; while the woollen and worsted trades

clocks and watches, fish canning, button making, and electrical appliances and accessories.

In the centre of City Square stands Brock's equestrian figure of the Black Prince, whose father Edward III did much to establish the wool industry in L. Briggate, which crosses Boar Lane, is a leading shopping street, and Duncan St—named after Adm. Duncan—is another chief shopping centre. Another, Kirkgate, leads to the markets and to the par. church. The church is said to be the fourth to be built on this site since Domesday Book recorded that L. possessed 'a priest, a church, and a mill.' In the church is a pre-Conquest cross, the oldest political monument in L. Crossing Briggate is a new 80-ft-wide street, called the Headrow. This is now the main street leading to the city's shopping centre; its elevations are the work of Sir Reginald

Blomfield. Above the Headrow is St John's Church, the city's eccles. treasure, which was built and endowed in 1634 by John Harrison and is a complete example of 17th-cent. Gothic architecture. Running off the Headrow is King Charles Croft, the site of the Red Hall, formerly a mansion, which received as a prisoner King Charles I. The L. museum, in Park Row, contains an Egyptian mummy of 1070 bc, pottery, Yorks tokens, objects of Civita Lavinia, zoological specimens, and much else of general interest. Near Park Row is St Anne's Rom. Catholic cathedral. The tn hall was designed by Cuthbert Brodrick and opened by Queen Victoria in 1858; it is in the classic style, with a tower 225 ft high. At the rear of the tn hall is the civic hall, the most modern public building, which was opened by King George V in Aug. 1933. The main frontage has a portico with 6 columns and the twin towers are 170 ft high, each surmounted by a large gilt owl, which is part of the arms of the corporation. Opposite the tn hall are the municipal buildings, now occupied by the central reference and lending libraries, the commercial and technical library, and the art gallery.

The city has a fine univ. (see LEEDS, UNIVERSITY OF). There are a girls' high school (1876) and a grammar school founded in 1552 and enlarged in 1663, as well as over 160 primary and secondary schools, accommodating 73,000 children. There is a teachers' training college and a college of housecraft, and the Carnegie Physical Training College in Beckett Park was the first of its kind in the country. L. returns 7 members to Parliament and is the second city of Yorks and the sixth in England. L. did not suffer extensive war damage compared with some other cities of the kingdom, the heaviest raid being on 14-15 Mar. 1941. Altogether there were 9 raids on L., in which 77 persons were killed, over 300 injured, and 4000 rendered homeless; 170 houses were demolished and 4300 damaged; while 22 non-residential buildings were demolished and 3400 non-residential buildings were damaged.

The area of L. is about 38,300 ac. Of this over 3200 ac. are taken up by parks and open spaces. The 2 prin. parks are at Roundhay (629 ac.) and Temple Newsam (935 ac.). Roundhay Park has natural woodlands and 2 lakes and was formerly a royal hunting ground. Temple Newsam, the largest of the city's open spaces, was acquired in 1922 from the Hon. E. F. L. Wood, later Lord Halifax. Another attractive piece of woodland is Middleton Park (316 ac.), lying to the S. of the city near an industrial dist. There is an aerodrome at Yeadon of some 200 ac. The pop. of L. in 1775 numbered 17,000; to-day (1958) it is 505,500.

**Leeds, University of**, developed from the Yorks College of Science, founded 1874, which was predominantly scientific in its instruction but later broadened its educational field, and in 1884 united with the L. School of Medicine (founded 1831). Subsequently the college became feder-

ated with Owens College, Manchester, and Univ. College, Liverpool, to form the Victoria Univ. (q.v.). This union was dissolved in 1903, and the following year the univ. of L. was constituted by royal charter. The Brotherton Library (capable of housing 1,000,000 vols.) forms part of the development scheme for univ. buildings to cover 16 ac. As parts of an extensive building programme the Parkinson building, the man-made fibres building, and University House have been completed since 1950. Work is in progress on other buildings and further extensions are planned. There are 6 faculties and an institute of education. Students number over 3,530 (of whom nearly 500 are post-graduate). The 4 affiliated colleges include the College of the Resurrection, Mirfield.

'**Leeds Mercury**,' estab. in 1718 as a weekly newspaper at 1<sup>d</sup>. When the stamp tax was imposed its price gradually rose until in 1797 it was 6d., with a circulation of only 800. Under the guidance of the Baines family it became a powerful voice of Liberalism and for a long time had the largest sale of any prov. daily. In 1901 it was 1<sup>d</sup>. It was amalgamated with the *Forkshire Post* (q.v.) in 1939.

**Leek**, mkt tn of N. Staffs, England, 8½ m. from Burslem, known as the 'capital of the moorlands,' near the Dove, Manifold, and Dane valleys, and specially noted for its sewing thread and silk dye works, and manufs. of silks and ribbons. Pop. 19,358.

**Leek**, hardy biennial plant, *Allium ampeloprasum*, var. *porrum*, which is largely grown for food, the whole plant, with the exception of the fibrous root, being utilised. It is the national emblem of the Welsh, who wear it on St David's Day; but some authorities maintain that the L. has been confused with the daffodil, which in Welsh is *Centin Pedr*, St Peter's L. See also HOUSE LEEK.

**Leer**, Ger. tn in the Land of Lower Saxony (q.v.), at the confluence of the Ems and the Leda, 110 m. NW. by W. of Hanover (q.v.). It is a busy riv. port, has an anct castle, and has interesting churches. There are foodstuff and textile industries. Pop. 20,000.

**Lees**, urb. dist., tn, and par. of Lancs, England, 1½ m. SE. of Oldham, of which it is a suburb. Pop. 4100.

**Leese**, Sir Oliver William Hargreaves (1894- ), Eng. soldier. After service in the First World War, in which he gained the D.S.O., L. was appointed deputy chief of the general staff of the B.E.F. in 1940, and a divisional commander. A lieutenant-general in 1942, he commanded the 30th Corps of the Eighth Army from Alamein to Sicily. In Jan. 1944 L. became Eighth Army commander until transferred in Nov. to Allied Land Forces, SE. Asia. From 1945 to his retirement in 1946 he was general officer commanding-in-chief, R. Command. In 1937 he succeeded to the family baronetcy. Lieutenant-general, 1944; lieutenant of Tower of London, 1954.

**Leeton**, tn in Murrumbidgee Irrigation

Area in New S. Wales, Australia, 378 m. SW. of Sydney. Fruit- and rice-growing are the prin. pursuits. Pop. 5100.

Leeuwarden, cap. of the prov. of Friesland, Netherlands, 70 m. NNE. of Amsterdam. The tn is intersected by numerous canals and is well built. The Frisian museum has a fine collection of paintings, silver ware, porcelain, and regional costumes. L. trades in grain, dairy produce, and cattle, and has important manufs. of glass, metal, gold, and silver ware, musical instruments, and cloth. Pop. 81,370.



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ANTHONY VAN LEEUWENHOEK

Leeuwenhoek, Anthony van (1632-1723), Dutch naturalist, b. Delft. He was a cloth merchant by trade, and as a hobby made magnifying lenses. He obtained quite high magnifications, even though his microscopes were of the simple type and contained only a single lens; the compound microscope, with separate eyepiece and objective, was invented a few years earlier by Galileo (1564-1642). L. ground his own lenses by a method which still remains a secret. He made many important discoveries in the anatomy of man and the higher animals and insects. He also discovered bacteria (q.v.). Most of his discoveries were pub. in the *Philosophical Transactions* of the Royal Society, of which body he became a fellow in 1680, and in the *Mémoire* of the Paris Academy of Sciences, of which he became a member in 1697. Two collections of his works, one in Dutch and one in Latin, appeared in his lifetime, and a selection from them has been trans. into English by S. Hoole (1798-1807). His letters were pub. in 1941 in Amsterdam. See C. Dobell, *Van Leeuwenhoek and his Little Animals*, 1932.

Leeward Islands, name given to the

group of the Lesser Antilles which skirts the Venezuelan coast. The name—*Islas de Sotavento*—was formerly a geographical designation given by the Spaniards, to indicate the sheltered position of the is. as opposed to *Islas de Barlovento*, the Windward Is. It is now applied to the Brit. colony comprising the 4 presidencies Antigua (with its dependencies Barbuda and Redonda); St Kitts, Nevis, and Anguilla; Montserrat; and the Virgin Is. (qq.v.). Dominica (q.v.), by her own wish, ceased to be a presidency of the L. I., becoming a separate colony under the governor of the Windward Is., and an Act to that end was passed by Parliament in 1938. The federation of the L. I. was effected by an Act of the Imperial Parliament of 1871. In its geographical sense the L. I. also include Guadeloupe and Martinique and other is. belonging to other European states. France possesses Guadeloupe, Martinique, St Bartholomew, and part of St Martin (qq.v.), while Holland has St Eustatius (q.v.), Saba, and the other part of St Martin, and Denmark has a share in the Virgin Is. St Kitts has been in continuous Brit. occupation since the days of Sir Thomas Warner (from 1623), and, having thus early been a base for further colonisation, proudly calls herself 'The Mother Colony of the W. Indies.' Norman Is., in the Virgins, is said to be the original 'Treasure Island' of R. L. Stevenson. The chief products are sugar, salt, phosphate of alumina (obtained from the rich deposits in the islet of Redonda), lime-juice, which is exported from Montserrat, rum, molasses, cacao, and oils, the two last being from Dominica. St John, in Antigua, with a pop. of 11,000, is the cap. and residence of the commander-in-chief of the Brit. colony. A commission appointed in 1932 recommended that the L. I. and the Windward Is. should be united into one colony under a single governor, with the H.Q. at St Lucia, but the recommendation was not accepted. Air services touch at Antigua. The total area of the Brit. L. I. is 422½ sq. m. and the pop. 127,140. See A. Macmillan, *The West Indies, Past and Present, with British Guiana and Bermuda*, 1938.

Le Fanu, Joseph Sheridan (1814-73), novelist, b. Dublin, grand-nephew of Richard Brinsley Sheridan (q.v.). Educ. at Trinity College, Dublin, he became proprietor of the *Dublin University Magazine*, in which many of his novels made their first appearance. In 1837 he wrote the famous Irish ballad, 'Shamus O'Brien.' He was long engaged in journalism, amalgamating the *Warden*, the *Evening Post*, and the *Dublin Evening Mail* as the *Evening Mail*, but he pub. 2 novels, *The Cock and Anchor*, 1845, and *Torloagh O'Brien*, 1847, neither of which attracted any particular attention. It was in 1863, with *The House by the Churchyard*, that he first secured public favour, and he followed up this success with *Uncle Silas*, 1864, and *Wylder's Hand*, 1864, both popular, and sev. other works of fiction such as *Haunted Lives*, 1868, *The Wyvern*



*Mystery*, 1869, *Willing to Die*, 1870, and *Through a Glass Darkly*, 1872. Another member of the family, Brinsley le F., was well known as an illustrator of books. See J. M. Ellis, *Wilkie Collins, Le Fanu, and Others*, 1931.

**Lefebvre, Pierre François Joseph, Duc de Danzig** (1755–1820), marshal of France, b. Rufsch, Alsace. He fought at Fleurus in the revolutionary wars, and on his return to France assisted Napoleon in the *coup d'état* of 1799, becoming a marshal of the empire in 1804. In the war against Prussia he captured Danzig in 1808. He commanded the Imperial Guard in Russia, 1812, and fought through the last campaign of the empire. After Napoleon's abdication he was made a peer. See life by J. Wirth, 1904.

**Lefèvre d'Étaples, Jacques**, see FABER, JACQUES.

**Leflier, Anna Carlotta**, see EDGREN.

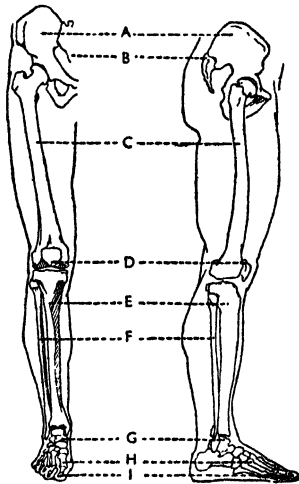
**Lefroy, Mount**, peak, 11,230 ft high, in the Rocky Mts., at the W. border of Alberta, Canada, 35 m. WNW. of Banff.

**Left-handedness**, see AMBIDEXTERITY.

**Left Opposition, or Left Deviation**, in Communist parties and in the Communist International, opposition to the policy of the dominant group by the more radical elements, i.e. those stressing revolutionary principles or the proletarian character of the party. In Russia the main L. O.s were those led by Bukharin in 1918, by Trotsky in 1923, by Zinoviev and Kamenyev in 1925, and the 'combined' opposition in 1927. See F. Borkenau, *The Communist International*, 1938, and L. B. Schapiro, *The Origin of the Communist Autocracy*, 1955.

**Leg**. In common speech the word leg is used for the whole of the hind limb; anatomically the word applies only to the shank, or portion between the knee and ankle. There is a great similarity in the anatomy of the hind limb in all animals. The thigh has one main bone, the femur, which enters into the formation of the hip-joint above and of the knee-joint below. The L. proper contains 2 bones, the tibia and the fibula. The tibia is the larger of the 2 bones and the more palpable. Its anterior border forms the shin. The upper part of the tibia forms, with the lower part of the femur, and with the patella or knee-cap, the knee-joint; but both the tibia and the fibula enter into the formation of the ankle-joint, the tibia forming the inner and the fibula the outer malleolus. Below these 2 bones come the small bones of the tarsus and metatarsus, forming the framework of the foot, and below the metatarsus come the phalanges of the toes. The chief difference in structure of the hind limb is due to the fact that in the course of evolution it has rotated inwards. The anterior part of the L. of a lizard is represented in man by the inner part, whereas the homologue of the posterior part is the posterior outer and anterior parts of a man's L. The main arterial supply of the L. is from the common femoral artery, which runs at first in the anterior part of the thigh and curves round the lower part of the femur

to become the popliteal artery behind the knee; the main nerve supply is the great sciatic nerve, running in the posterior part of the thigh. The nerve supply from the knee downwards comes from the popliteal nerves, branches of the great sciatic. The artery with its vein and the 2 nerves are to be found in the popliteal space at the back of the knee. The popliteal artery divides into the anterior and posterior tibial



BONES OF THE LEG

A, ilium; B, sacrum; C, femur; D, patella; E, tibia; F, fibula; G, tarsals; H, metatarsals; I, phalanges.

arteries. The venous return is by deep and superficial channels. The superficial group of veins, which end in the long saphenous vein, which in turn enters the femoral vein just below the groin, are those which are liable to become varicose (see VEINS).

**Legacy** (Lat. *legatum*), in Eng. law bequest of personal property made by a testator in his will to be paid by his executor. L.s may be specific, general, demonstrative, or cumulative. A specific L. is a gift of a specified object, such as a particular picture or certain shares. Such a L. is liable to ademption, that is to say, if the picture should have been destroyed by fire or the shares sold in payment of the testator's debts, no compensation is made. But if the specific L. exists it must be paid in full in preference to all other L.s. A general L. is a gift payable out of the assets and not particularly distinguished from the whole of the personal estate. It is liable to abatement only when there is not sufficient to pay all the general L.s. A demonstrative L. is primarily payable out of a specified fund, but if there is any balance to be paid recourse must be had

to the residue of the estate. A cumulative L. is a second or further L. to the same person. If the 2 L.s are of equal amount, or bequeathed by the same instrument, it is assumed that the second is a mere repetition of the first; but if they are bequeathed by different instruments or are of unequal amounts it is assumed that the second L. is in addition to the first. A L. is not payable till a year after the death of the testator. A L. to a creditor is regarded as payment of the debt, provided it is not less than the sum owing. See also LEGACY AND SUCCESSION DUTY. See Jarman, *On Wills*, 1951, and Theobald, *On Wills* (9th ed.), ed. by J. H. C. Morris, 1954.

**Legacy and Succession Duty.** Legacy duty was first imposed under the Legacy Duty Act of 1796 as a tax on all bequests of personality. The 1853 Succession Duty Act required all property passing at death not liable to legacy duty to pay succession duty. The duty was payable at rates varying with the degree of relationship between the testator and the beneficiary irrespective of the amount involved.

L. and S. D. no longer exists; it was consolidated into estate duty (q.v.) in 1949.

The rates of duty imposed by the Finance Act, 1947, were:

<i>Relationship of Beneficiary</i>	<i>Rate of Duty per cent</i>
Husband or wife, child, or lineal descendant, or ancestor	2
Brother or sister or lineal descendant	10
Charities	10
Any other beneficiary	20

The average ann. yield from the duties for the financial years 1945-6 to 1949-50 was \$17 million.

**Legal Aid,** see POOR PERSONS' LEGAL AID.

**Legal Education** in England is undertaken by the univs., which award law degrees; the Council of L. E., which is responsible for the examination leading to the call to the Bar; and the Law Society, which conducts the examination of candidates for admission to the roll of solicitors:

(a) The *Universities* provide degree courses in the academic study of law. The possession of a law degree does not entitle the holder to practise as a barrister or solicitor. Some prov. univs. do, however, provide courses for the professional examinations.

(b) The *Council of Legal Education*, controlled by the 4 Inns of Court. Candidates for call to the Bar must register as a student member of an Inn. The student is generally required to keep terms by attending dinners in the hall of his Inn to the number of 24 a year for 3 years. In the days before formal L. E., the object of dining in hall was to enable the student to hear learned members of his Inn give readings on legal topics and attend 'moots'

(i.e. disputations on some legal proposition). Nowadays tuition in subjects in the curriculum for the Bar is provided by the Council of L. E.; attendance at its lectures is not obligatory. Before call to the Bar the student must pass the examinations held by the Council of L. E. Part I of the examination comprises Rom. Law, Contract and Tort, Real Property, and Legal History. Part II comprises Common Law, Equity, Evidence, Civil and Criminal Procedure, Master and Servant, Company Law, and optional papers in either Conveyancing or Divorce. As many students from India, Pakistan, and Ceylon and the colonies obtain the qualification of barrister-at-law to enable them to practise in their own countries, they may take alternative papers in Rom.-Dutch, Hindu, or Muslim law. An applicant for admission as a student must produce a certificate of character to the satisfaction of the Masters of the Inn which he seeks to enter. Many persons obtain the qualification of barrister-at-law without any intention of practising at the Bar. Members of certain professions are not allowed to become Bar students. For this reason all applicants for admission to an Inn of Court must make a declaration that they are not acting, either directly or indirectly, as solicitor, attorney, clerk of the peace, parl. agent, or in any similar capacity, nor as chartered accountant, actuary, land agent, surveyor, patent agent, or consulting engineer. Before commencing practice, the newly called barrister usually serves a period of pupillage in the chambers of an estab. counsel in order to learn something of the practice of the courts and pleading.

(c) The *Law Society* conducts the examinations for applicants for admission to the roll of solicitors. Candidates must be articled for a minimum of 3 years to a practising solicitor of at least 5 years' standing. Candidates who are not univ. graduates or solicitors' managing clerks of 10 years' standing are usually articled for 5 years. Univ. graduates in law are exempt from the law portion of the intermediate examination, but are, in common with all other candidates, obliged to take a paper in solicitors' bookkeeping and trust accounts. Candidates for the final examination must pass each of 7 papers in a much wider range of subjects than is proscribed for Bar students. The Law Society conducts a law school which provides tuition for candidates for its examination. Attendance at this school for 1 year is obligatory on all articled clerks who have not previously studied in the law faculty of an Eng. univ. Applicants for admission to the rolls must produce a statement from their principals that they have attended their offices regularly. The purpose of this requirement is to satisfy the Law Society that the articled clerk has acquired some practical experience of the work in a solicitor's office. See Glanville Williams, *Learning the Law* (5th ed.), 1954.

Le Gallienne, Richard (1868-1947), poet

and essayist, b. Liverpool, son of a merchant. Literary critic for the *Star*, 1891, he joined the staffs of the *Daily Chronicle* and the *Speaker*. The range and quality of his general criticism were well represented in *Retrospective Reviews*, 1896. His romantic novel, *The Quest of the Golden Girl*, which appeared in 1896, won not only a *succès d'estime* but popular favour as well. He visited the U.S.A. on a lecture tour in 1898, afterwards taking up his residence in New York and later in France. His other works include *My Lady's Sonnets*, 1887, *Robert Louis Stevenson and Other Poems*, 1895, *Travels in England*, 1900, *George Meredith: some Characteristics*, 1902, *Vanishing Roads*, 1915, *Pieces of Eight*, 1918, *The Romantic Nineties*, 1926, *The Magic Seas*, 1930, and *From a Paris Garret*, 1943.

**Legal Marxists**, group of economists and sociologists in Russia who in the 1890's were advancing and developing Marxist views in the legal (i.e. not underground) press. It included among others P. B. Struve, Tugan-Baranovskiy, Bulgakov, and Berdyayev. Together with Plekhanov and Lenin they popularised Marxism in Russia, and to a considerable extent succeeded in converting the Socialist intelligentsia from populism (q.v.). See D. W. Treadgold, *Lenin and his Rivals*, 1955.

**Legal Tender**, see TENDER.

**Legal Theory**, see JURISPRUDENCE.

**Legaspi**, city, cap. of Albay prov., Luzon, on Albay Gulf, in the Philippine Archipelago. The municipalities of Albay and L. were combined in 1907 to form L. Daraga municipality and L. municipality were combined soon after 1940 to form L. city. It is an industrial town and shipping centre for abaca and copra. Pop. 78,828.

**Legate** (Lat. *legatus*, ambas.), title now confined to the ambas. or diplomatic representative of the Pope. L.s are of 2 classes: *legati nati* (L.s b.) and *legati missi*, or *dati* (dispatched L.s). The former title is now almost honorary. *Legati nati* were formerly attached to some auct. see, such as that of Canterbury, and the title still attaches to the sees of Seville, Rheims, Cologne, etc. *Legati missi* may be (1) *Legati a latere*, that is, dispatched from the side of the Pope. A cardinal is generally employed, and he is the plenipotentiary representative of the Pope. (2) *Nunciis* or *internunciis apostolicis*, those whose jurisdiction is limited, according to the terms of their mandates. (3) *Apostolic delegates*, whose duty it is to supervise eccl. matters and inform the Pope thereon. (4) *Envoys extraordinary* are apostolic delegates charged with some definite ecclesiastico-diplomatic mission. The functions of L.s are generally performed to-day by the lesser representatives known as nuncios, or internuncios.

**Legend** (Lat. *legenda*, from; *legere*, to read), originally the term applied to a narrative of a religious kind in the early days of Christianity, and hence used for portions of scripture and lives of the saints as read in public worship. The word later came to be applied to a story without any

foundation in hist., but popularly supposed to be true, handed down from one generation to another. These L.s were at first brief and simple, but gradually developed into long and imaginative tales of a more and more exaggerated description, so that by degrees the word came to mean a narrative, professedly historical, but in reality only traditional. The famous *Golden Legend*, a medieval collection of the lives of the saints, was composed towards the end of the 13th cent. by Jacobus de Voragine or Varagine (1230-98), b. Varaggio, in Genoa. The title of his collection, in Latin, was *Legenda Sancta*, but it became so popular that it was called *Legenda Aurea*. The word L. is also used in connection with coats of arms and shields, by numismatists for inscriptions or mottoes on coins or medals, and by printers for the title or descriptive matter accompanying an illustration. See A. H. Guerber, *Myths and Legends of the Middle Ages*, 1906; G. H. Gerould, *Saints' Legends*, 1916; J. G. Frazer, *Folk Lore in the Old Testament*, 1919; W. R. Halliday, *Indo-European Folk Tales and Greek Legends*, 1933; E. Morris, *Legends of the Bells*, 1935.

**Legendre, Adrien Marie** (1752-1833), Fr. mathematician, b. Toulouse. Through the influence of D'Alembert he obtained the professorship of mathematics at the École Militaire, and afterwards at the École Normale. He was admitted to the Académie des Sciences for a brilliant paper on the attraction of spheroids in revolution (1783), and in 1787 was appointed to the commission to connect geodetically Greenwich and Paris. In *Nouvelles Méthodes pour la détermination des orbites des comètes*, 1806, he propounded his method of least squares. Perhaps his greatest works were his *Traité des fonctions elliptiques et des intégrales Euleriennes*, 1827-1832, and *Essai sur la théorie des nombres* (3rd ed.), 1830.

**Léger, Fernand** (1881-1955), Fr. painter, b. Argentan. He became an architect's draughtsman in Paris, studied painting, and evolved from Cubism an art directly influenced by modern mechanical forms. His work includes painting and book illustration, designs for wall decoration, mosaic and stained glass, and has had considerable influence on the modern poster. See studies by E. Tériade, 1928, and D. Cooper, 1949.

**Legge, George**, see DARTMOUTH, BARON.  
**Legge, James** (1815-97), Scottish sinologist and missionary, b. Huntly, Aberdeen. In 1839 he went as a missionary to the Chinese, but was stationed at Malacca until 1842. Then he moved to Hong Kong, and remained there until 1873. In 1876 he became prof. of Chinese language and literature at Oxford; and his trans. of the Chinese classics, completed a few years before his death, won him a world-wide reputation. L.'s vast work forms an essential contribution of European scholarship to the knowledge of Chinese literature and civilisation. He ed. and commented, in 8 vols., the Chinese Confucian classics (1861-72), which he later reprinted in *The Sacred Books of the East*.

He also ed. *The Travels of Fa-hsien*, 1886, and the Taoist texts (2 vols.), 1891. Apart from these works he published sev. works on Chinese religion, hist., and philosophy.

**Leghorn** (It. Livorno): 1. Prov. of Italy, in W. Tuscany (q.v.), lying along the coast of the Ligurian Sea. In the S. it is in the Maremma (q.v.), and it is generally low-lying, but has some hills in N. and S. The chief rvs. are the Cecina and the Cornia. The is. of Elba (q.v.) and other small is. are included in the prov. Among the prin. tns are L. and Piombino (qq.v.). Area 488 sq. m.; pop. 294,000.

2. It. seaport, cap. of the prov. of L., on the Ligurian Sea, 47 m. WSW. of Florence (q.v.). In the 14th cent. it was under the domination of Pisa (q.v.). At the beginning of the next cent. it came into the hands of the French, who sold it to Genoa (q.v.) in 1407. It was purchased by the Florentines in 1421, from which time its prosperity dates. In 1606 the port and harbour were opened to traders of all nationalities, and it was a free port from 1691 to 1867. There was very severe damage from bombing and shellfire during the Second World War. The cathedral (begun 1594) has a façade ascribed to Inigo Jones (q.v.). Of the 4 porticoed palaces which stood in the adjoining square only one escaped serious injury in the war. There are many other palaces and Renaissance churches, as well as impressive coastal forts. The tn has museums and picture galleries, and there is an important library (1816). The chief industry is shipbuilding, and the exports include 'Leghorn' (straw) hats, coral ornaments, olive oil, and wine. Pietro Mascagni (q.v.) was b. here. Pop. (tn) 110,000; (com.) 145,700.

**Legion**, see ROMAN ARMY.

**Legion d'Honneur**, see ORDERS OF KNIGHTHOOD, FRANCE.

**Legion of Mary**, founded in Dublin on 7 Sept. 1921. The aims of the L. of M. are (a) the sanctification of its members by prayer and apostolic works; and (b) the provision of a *corps d'élite* which will be at the disposal of the eccles. superiors for the carrying out of any work desired (save the giving of material relief). The Legion looks beyond the actual work to the daily life and occupations of its members, and trusts, by enkindling in them the apostolic spirit, to set abroad a leaven in the community influencing every home, factory, shop, office, and every other place in which its members may be set by circumstances. The obligations of membership are satisfied by (1) attendance at a weekly meeting; (2) daily recitation of certain prescribed prayers; (3) weekly performance of some active work assigned at the weekly meeting. Generally the works of the Legion are based upon the principle of establishing friendly, personal contact with all sections of the community through the visitation of homes, hospitals, and various institutions. Also, every effort is made to cater for youth, and there is a special junior section of the Legion which organises an apostolate to youth by youth. The organising and conducting of

youth clubs and the providing of leaders for various youth movements receive special attention. Other works undertaken are the propagation of Catholic literature, the conducting of book-barrows on the streets, the seeking and instruction of converts, and work for the derelict sections of the pop. Legion branches composed of members of the various services carry out a wide and varied apostolate amongst soldiers and seamen. The L. of M. is now estab. in almost 1000 dioceses throughout the world. Its manual or handbook has been pub. in 15 languages, while trans. are in course of preparation in 6 other languages. The legion prayers are being recited in 70 languages and dialects throughout the world. Legion membership embraces all sections of the community and all races.

**Legion of Merit**, U.S. decoration instituted in 1939.

**Legis**, see CEREHGIN.

**Legislation and Legislative Processes**, the making of laws by a sovereign body elected or otherwise constituted for that purpose. Although at the present time the great mass of legislation emanates from the promulgations of parliaments and similar institutions, there can co-exist other sources of new laws. In England the Crown still possesses, by virtue of its prerogative (see CROWN), a residue of legislative power by proclamation in times of emergency. In practice such power is only exercised on the advice of the Cabinet. In view of the volume of legislation many modern legislatures, including the Brit. Parliament, delegate to the executive certain limited powers to issue regulations having the force of law on matters of detail. Similar delegated powers of legislation are often conferred on local authorities and statutory undertakings (e.g. the London Co. Council and the Brit. Transport Commission).

The judges have a covert and unavowed power of legislation. It is, however, an axiom of legal administration that the Eng. judges only *declare* law; but a study of the law reports shows that old *rationes decidendi* (principles underlying judicial decisions) are constantly undergoing slow but distinct modification by the process of engraving so many exceptions or extensions as to render the original principles almost unrecognisable. At one time the judges claimed the right to challenge the validity of statutes if they conflicted with their conception of the common law. The claim has long since been abandoned as the intentions of the legislature could have been defeated by the caprice or prejudice of judges. Modern Eng. judges interpret enacted law 'grammatically', i.e. according to the letter. If, however, a statute is logically defective by reason of ambiguity, inconsistency, or incompleteness, the judges literally or strictly apply the more natural meaning; where this is incapable of strict construction they apply the statute equitably. Generally, however, it is not competent for judges to ascertain the intention of the legislature by reference to speeches in parl. debates

if those intentions are not expressed in enactments.

In progressive societies legislation, according to Maine, comes last in historical order among the agencies by which law is brought into harmony with society (see EQUITY; FICTION; CUSTOMS), the other agencies being legal fictions and equity. The characteristic difference of legislation from the other agencies is that its obligatory force in no way depends upon its principles, for theoretically parliament or an autocratic prince can legislate in defiance of public opinion. That legislatures, in democratic countries at least, do not in fact do so at the present day is because their enactments are in accordance with the morality and sentiments of either the actual majority or at least a very respectable proportion of the people at large. It would be an interesting but speculative inquiry to investigate the actual relations of custom or customary law (see CUSTOMS; CONSUETUDINARY) and legislation. Customs have frequently crystallised into legislative enactments, and on the other hand general enactments have often expressly respected customs. At all events one assertion of Maine's seems historically accurate, that generally speaking the epoch of customary law is everywhere the immediate predecessor of the era of codes (q.v.).

Legislation in the sense of law enacted by sovereign legislatures tends to absorb all other sources and even forms of law. Rights and duties may, of course, be created by private bodies in whose name has been vested a restricted autonomy. For example, the shareholders of a company may, by a resolution at a general meeting, alter Articles of Association, and such alteration will be binding on a dissentient minority, provided that it is not *ultra vires*. The quasi-legislative powers of companies are, however, subject to the detailed provisions of the Companies Acts. Similarly the powers of professional bodies to make regulations binding on their members are often limited by statutory enactments.

In the Middle Ages statute law in England contributed less to law-making than did the common law which was being evolved from the precedents of decided cases. Practically two-thirds of the Acts recorded in the statute book between the 13th cent. and the middle of the 19th cent. were passed in the last 200 years of that period. The meetings of Parliament were intermittent until Parliament in its great constitutional struggle with the Crown in the 17th cent. won its unchallenged legislative powers. Parl. sovereignty and the rapid expansion of governmental activity in the social and economic life of the nation and in international affairs have in the last 100 years enormously increased the volume of statute law. Although legislative acts in England are not imposed by consent in quite the same degree as Acts imposed through a referendum (see INITIATIVE), the principle of representative gov. ensures that modern statute law meets with

the approval of a large proportion of the electorate and would be ineffective without the sanction of public opinion.

*Legislative processes.* In ancient Rome there was but little direct law-making, except to meet temporary emergencies. Such laws as were made were first proposed and determined on by the Senate, under the guidance of the king as the chief magistrate, and then submitted to the supreme council of the *gentes* (*comitia curiata*). The king himself as *pontifex maximus* promulgated laws (*leges regiae*) relating exclusively to religious ceremonies. In the rep., after the assembly of the tribes had superseded that of the centuries, the chief process of legislation was by *plebiscita*, though the ordinances of the Senate (*senatus consultum*), from being of doubtful authority, were gradually acquiring importance. The Senate also issued injunctions in the form of directions to particular magistrates, and, according to Puchta, before the era of the rep. had closed made independent enactments by decree in matters concerning religion, police, and civil administration. After the rep. gave way to the empire, the method of legislation, as well as its source, changed completely. The emperor, nominally only chief magistrate, acquired the *imperium*, or supreme command in the state, and gradually absorbed the sole legislative authority, dictating to the Senate what it was to enact or else enacting law himself. The processes by which the emperor's will expressed itself in legislation were by *edicta*, enunciated in his capacity as magistrate, *mandata*, or orders, directed to particular officers, *epistulae* addressed to individuals or public bodies, *decrees* or judicial sentences having the force of precedents, and *rescripts* to magistrates by way of answer on points of difficulty. Nominally the people continued to make laws, but they were no more than laws passed at the bidding of the emperor. The process of legislation was for the emperor to lay a bill or *lex* before the Senate in an *oratio* or *epistula*, after which it received the more or less formal *auctoritas* of the Senate.

In England legislation under the Norman kings was by charter issued by the king and assented to by the barons; those charters were hardly more than confirmations of customs and liberties (see FRANCHISE). The Angevin kings made laws by *assize* (*assisa*, statute) issued by the advice and consent of the barons, archbishops, abbots, and other members of the royal council, and proclaimed in the shire courts by the sheriffs. According to Stubbs they remained in force during the royal pleasure. In Henry III's reign legislation was, by a form, called *provisions*, e.g. the provisions of Oxford; and towards the end of the 13th cent. by statute and ordinance. Statutes were enacted by the assent of the prelates, earls, barons, and the commonalty of the realm. They were generally founded on petitions addressed to the king by the Commons, with the assent of the prelates, earls, and barons. The petitions were

referred to a committee of the peers and answered by the king on their advice, the statute itself being framed from the petition and its answer (see J. E. Jolliffe, *Constitutional History of Medieval England*, 1937, and Stubbs, *Select Charters*). The prerogative power of legislation by ordinance was of short duration, and the enactments so made were not enrolled in the year books, unless ultimately converted into Acts of Parliament. When the executive and legislative functions became more clearly separated, and the Commons had gained the controlling power in initiating legislation, they protested against legislation in the guise of an executive ordinance, and accordingly ordinances ceased in the 15th cent. Legislation by ordinance was revived in the 16th cent. in the shape of *proclamations* issued by the Crown in council by way of supplement to statute law, and later as completely independent autocratic enactments. Charles I issued many of these illegal proclamations, but they disappeared after 1640. The claim of the Stuart kings to dispense with the operation of particular statutes in individual cases, or to suspend an Act altogether, was abrogated by the Bill of Rights in 1689. The Crown can, however, still manifest the residue of its discretionary power by means of Orders in Council and Proclamations; but they are probably made subject to the assent of Parliament, and in any case are revocable by statute.

Legislation is now by Bill introduced in either House, passed by both Houses, and formally assented to by the Crown. Thus every Act of Parliament commences with the declaration 'Be it enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons in this present Parliament assembled, and by the authority of the same, as follows . . .'

Certain Acts of Parliament empower ministers of the Crown to make regulations having the force of law on matters of detail. Such regulations, formerly called Statutory Rules and Orders, are now known as Statutory Instruments and must be laid before Parliament, which can annul them. The procedure for this 'delegated legislature' is to be found in the Statutory Instruments Act, 1946. A great deal of the law of England is now to be found in these Statutory Instruments.

The National Assembly of the Church of England has powers to legislate on matters of eccles. law binding on the Estab. Church. Its enactments are known as Church Measures.

**Legislature**, body of men in any state constitutionally vested with the power to make, amend, or repeal laws. Constitutionally the sovereign L. in England is the House of Commons, the House of Lords, and the queen. But the queen's veto is never exercised (see CROWN), and the Parliament Act cut down the power of the Upper House to the extent that Bills 3 times sent up to it within 2 years automatically became law. In 1948 the

Labour Gov. reduced the number of times a Bill had to be sent to the Lords from 3 times to 2, and the period from 2 years to 1. There is theoretically nothing a sovereign L. cannot do, but where the L. is representative it more or less reflects the will of the political sovereign, i.e. the electorate (q.v.). In England there is no law that the L. cannot make or abrogate, but in the U.S.A. laws may be treated by the courts as unconstitutional and therefore void; and in Switzerland the federal assembly cannot alter a constitutional principle without the consent of the people (see INITIATIVE). There are analogous limitations on the powers of the L. in respect of the Australian Commonwealth Constitution and, under the British North America Act, on the Canadian Parliament's powers. On the relations of the Eng. L. and the Executive see CABINET and EXECUTIVE, and for the L.s. of the crown colonies see that title. See also LEGISLATION AND LEGISLATIVE PROCESSES.

**Legitim**, or **Bairn's Part of Gear**, in Scots law that portion of the free movable property of their parent to which children are entitled at his or her death. If a father leaves one or more children but no widow, the former get one-half as their L., the other half being dead's part (q.v.). If he leave both widow and children the widow takes one-third, one-third goes to the children as L., and the remaining third is dead's part (see also JUS RELICTAE). There is no right of representation as to L., and hence the children of a deceased child have no claim to that part of their grandfather's estate which their parent would have been entitled to as L. had he survived. The right to L. is defeated if the father makes provision, however small, for his children in an ante-nuptial contract of marriage, expressly by way of substitution for L., but if he settles the whole of the property on the children by such contract, even though subject to a life-rent (q.v.) for the wife, the right to L. is excluded by implication. Generally speaking children claiming L. must collate any separate provision received by them from, or any advancement made to them by, the father (see HORTCHPOT); and this applies to the heir in heritage, who must collate the heritage, unless he be an only child. Like other legal systems deriving directly or indirectly from Rom. law, Scots law prevents a parent from willing away from his children more than a fixed proportion of his estate.

**Legitimacy**. By Eng. law a child born anywhere in lawful wedlock is legitimate, i.e. to quote a hypothetical case in Foote's *Medical Jurisprudence*, if a couple are married at 2 o'clock, and a child is born at 3 o'clock on the same day, that child is legitimate. Prior to 1927 there was no law in England for legitimating a child born out of wedlock, although Scots law has long recognised *legitimatio per subsequens matrimonium*, i.e. legitimization by the subsequent marriage of parents. *Legitimation per subsequens matrimonium* is now an accepted principle

in Eng. law. By the Legitimacy Act, 1926, which came into operation on 1 Jan. 1927, an illegitimate person is rendered legitimate if the parents marry or have married, whether before or after 1 Jan. 1927; but the father must at the date of the marriage be domiciled in England or Wales; and the legitimization dates either from 1 Jan. 1927 or from the marriage, whichever last happens. This Act does not legitimate a person whose father or mother was married to a third person at the time when the illegitimate person was born. The legitimated person may take property under intestacy occurring after legitimization or under any disposition coming into operation after legitimization. The legitimated person is legally bound to maintain all persons whom he would be bound to maintain if he had been born legitimate. The Act specially provides that nothing in it is to render any person capable of succeeding to or transmitting a right to any dignity or title; but otherwise legitimated issue is under no legal disability. Questions of L. have frequently arisen in lawsuits when, though a child has been born in wedlock, the parties have not been accessible to each other. But a man's accessibility to his wife is by the Eng. law of evidence taken for granted if, to use a quaint old phrase, he was 'within the four seas of the realm,' Eng. law, however, even before 1927, recognised as legitimate children born out of wedlock, but whose parents subsequently married, if both the law of the father's domicile at the date of birth and that of his domicile at the date of his marriage concur in allowing legitimization by subsequent marriage. In cases relating to disputed title to land the question of L. is determined exclusively by the law of the place where the property is situate (see *lex loci rei sitae*, under *LEX LOCI*), and if that law allows legitimization the child is legitimate. And generally it is a principle of the comity (q.v.) of nations to recognise the L. of children who are legitimate by the law of their place of origin, i.e. the father's domicile. Again even before the Act of 1926 the only consequences of illegitimacy were in regard to the devolution of property on intestacy (see *DESCENT*; *HEIR*; *INHERITANCE*). No person born out of wedlock could, prior to 1927, be an heir to Eng. real property, though such property could, prior to 1927, be validly left to him by will. Peerages or other hereditary dignities, not being the subject of testamentary disposition, could not devolve on an illegitimate person, and, as we have seen, they are excluded from the operation of the new Act. The Deceased Wife's Sister's Marriage Act, 1907, has the effect of legitimising the issue of any union with a deceased wife's sister, whether contracted before or after the Act was passed (see also *DECEASED WIFE'S SISTER*). Applications to the divorce court for declarations of L. or validity or invalidity of marriage are made under the provisions of the Judicature Act, 1925 (re-enacting the Legitimacy Declaration Act, 1858).

Under that Act a person may also claim to establish his right to be deemed a natural-born subject (see also as to Scottish law under *DECLARATOR*).

**Legitimation**, in Scots law, is the act by which children born out of wedlock are made lawful for the purpose of extending to them the privileges of truly lawful children. *L. per subsequens matrimonium* is a process derived from the canon law, which allowed the L. of all bastards, whether the offspring of concubinage or not, if the parents were capable of marrying at the date of conception (some authorities say the date of birth) and afterwards actually married. *L. per subsequens matrimonium* gives the bastard the full rights and status of lawfully begotten children. Where parents are domiciled, have bastard children, and then marry in a country the law of which does not recognise L., the children are not capable of succeeding to real estate in Scotland, for the law applicable is the *lex loci rei sitae*. Another mode of L. recognised by Scots law is by letters of L. from the sovereign (*L. per rescriptum principis*). Generally speaking, the only effect of this mode of L. is to defeat crown rights to property on intestacy; for in form letters of L. confer a right on a bastard who has no lawful issue to dispose of his property during his lifetime or by will, which right he enjoys independently of such letters. It may be mentioned here that the Age of Marriage Act, 1929, which nullifies marriage between persons either of whom is under the age of 16, does not affect in Scotland any right or capacity of *L. per subsequens matrimonium*. See W. M. Glog and R. C. Henderson, *Introduction to the Law of Scotland*, 1956.

**Legitimists** (Fr. *légitimistes*, from *légitime*, lawful, legitimate), name applied to a party in France, who, after the revolution of 1830, continued to uphold the claims of the elder branch of the Bourbon house. The rise to power of Napoleon III at the head of affairs set back its cause, but on his fall in 1871 its hopes were again raised. The Comte de Chambord gave it his support, but on his death in 1883 it was practically dissolved, only an insignificant remnant remaining (see *BOURBON FAMILY*). The word *légitimiste* has now spread beyond France, and is applied in England to any supporter of monarchy by hereditary right as against a parl. or other title. It is also used especially with regard to the Hapsburg followers in Austria.

**Legnago**, It. tn, in Veneto (q.v.), on the Adige (q.v.), 22 m. SE. of Verona. It is one of the fort. tns of the famous 'Quadrilateral' (q.v.). Pop. 22,000.

**Legnano**, It. tn, in Lombardy (q.v.), 15 m. NW. of Milan (q.v.). The Emperor Frederick I (q.v.) was defeated here by the Lombards in 1176. There are metallurgical and cotton industries. Pop. 35,900.

**Legnica** (Ger. *Liegnitz*), tn of Poland, in Wrocław prov., on the Katzbach, 40 m. W. of Wrocław (q.v.). It was formerly in Lower Silesia (q.v.). It was the cap. of the duchy of Liegnitz, 1163-1675, and it

then came into the hands of the Hapsburg (q.v.) family. In 1742 it passed to Prussia. There was much damage during the Second World War. There is an ancient castle and a baroque church. Textiles and chemicals are manuf. Pop. 60,000.

**Legnone, Monte**, mt in the Alps, on the E. side of Lake Como (q.v.), and the highest summit (8565 ft) in that region.

**Légouvé, Gabriel Jean Baptiste Ernest Wilfrid** (1807-1903), Fr. dramatist and writer, b. Paris. In 1832 he pub. a little vol. of verse entitled *Les Morts bizarres*, followed by a succession of novels, the chief being *Edith de Falsen*, 1840. In 1849 he made his mark as a dramatist with *Adrienne Lecouvreur*, written in conjunction with Scribe. In 1855 appeared his tragedy of *Médée*, which achieved a great success. Later he became prominent for his studies on the character and needs of women and children in France. His *La Femme en France au XIX<sup>e</sup> siècle*, 1864, *Messieurs les enfants*, 1868, *Conférences parisiennes*, 1872, *Nos filles et nos fils*, 1878, and *Une Éducation de jeune fille*, 1884, were works of wide-reaching influence in the moral order. He was elected to the Fr. Academy in 1855. See J. Quérard, *La France littéraire*, 1827-64.

**Legros, Alphonse** (1837-1911), Fr. painter and etcher, b. Dijon. He was a pupil of Lecoq de Boisbaudran, and in 1859 his 'Angelus' was exhibited and was highly praised. In 1863 L. came to England, married, and became a teacher of etching at the S. Kensington School of Art, and in 1876 Slade prof. at Univ. College, London, in succession to E. J. Poynter. See monograph by L. Bénédite, 1904. He is mainly celebrated for his etchings and drawings.

**Leguminosae**, dicotyledonous family of over 7000 species of shrubs, trees, ann. and perennial herbs, with one-celled superior ovary always, and fruit a legume, usually podded. Usually divided into 3 sub-families: *Papilionaceae*, *Casalpiniaceae*, and *Mimosoideae*. Distinctive for symbiotic association with bacteria in nodules on roots. Genera include *Acacia*, *Astragalus*, *Baptisia*, *Casalpina*, *Caragana*, *Cercis*, *Coleutea*, *Cytisus*, *Galega*, *Genista*, *Indigofera*, *Laburnum*, *Lupinus*, *Mimosa*, *Ononis*, *Pisum*, *Robinia*, *Vicia*, *Wisteria*, etc.

**Legya**, or **Laiha**, vil. and state of the S. Shan States, Burma, SE. by K. of Mandalay, produces rice, cotton, and sugarcane. It manufs. iron and lacquer ware. Pop. (state) 36,400.

**Leh**, tn of Kashmir, cap. of Ladakh, 160 m. E. of Srinagar. It is enclosed by a wall and towers, and has sev. Buddhist temples. It is the great rendezvous for intercourse between the Punjab and Tibet and Chinese Turkestan. It has an active trade in shawl wool. L. lies between the Indus, about 5 m. distant, and a chain of mts.

**Léhar, Ferencz (Franz)** (1870-1948), Hungarian composer, b. Komárom, son of a military bandmaster. For a time he followed his father's calling, though his

training at the Prague conservatory was as a violinist. His music shows the influence of the S. Slavonic folk tunes and he first tried to win fame as a composer of serious opera as, for example, in *Kukuska* (later renamed *Tatiana*), produced in 1896; but it was subsequently in the field of operetta that he achieved real distinction and the widest popularity. His best productions in this kind are *The Merry Widow*, 1905, *The Count of Luxembourg*, 1909, *Gipsy Love*, 1910, *The Land of Smiles*, 1923 (London, 1931), and *Frasquita*, 1925, all distinguished for light music of a high order deftly orchestrated. See studies by E. Deczey, 1924; G. Knosp, 1935; S. Czech, 1948; M. v. Petcani, 1950.

**Lehigh**, riv. in Pennsylvania, U.S.A., 103 m. long. It flows through an industrial area (power dams) past Allentown and Bethlehem to the Delaware R. at Easton. It has the scenic L. Gap near Palmerton.

**Lehmann, John Frederick** (1907- ), poet and essayist, b. Bourne End, Bucks, son of Rudolf L. (q.v.). Educ. at Eton and Cambridge, he went into the publishing business, and also ed. *New Writing*, and from 1954 the *London Magazine*. His vols. of verse include *A Garden Revisited*, 1931, *The Noise of History*, 1934, *Forty Poems*, 1942, *The Sphere of Glass*, 1944, and *The Age of the Dragon*, 1951. *Evil was Abroad*, 1938, is a novel, *Down River*, 1939, a travel book, and *The Open Night*, 1952, a collection of essays. *The Whispering Gallery*, 1951, is autobiographical.

**Lehmann, Lilli** (1848-1929), Ger. soprano singer, b. Würzburg. Studied under her mother, the singer Marie L., appeared at Prague as the first genie in Mozart's *Magie Flute* at an early age, was engaged at Danzig in 1868, at Leipzig in 1870, and made her first appearance in Berlin in the latter year. In 1876 she first sang at the Wagner performances of Bayreuth and in 1880 first visited London.

**Lehmann, 'Liza' (Elizabetta Nina Mary Frederika)** (1862-1918), singer and composer, b. Pinner. Studied first with her mother, Amelia Chambers, an accomplished amateur composer, and later at Rome, Wiesbaden, and at home with MacCunn, also singing with Randegger. In 1885 she made her first appearance as a singer at St James's Hall, where she sang for the last time in 1894, when she married the painter and composer Herbert Bedford. Her song cycles are still remembered as light music of the best kind.

**Lehmann, Rosamund Nina** (1903- ), novelist, b. London, daughter of Rudolf L. and sister of John L. (qq.v.). She was educ. at Newnham College, Cambridge, which is the scene of her first book, *Dust/Answer*, 1927. Others of her novels are *A Note in Music*, 1930, *Invitation to the Waltz*, 1932, with its sequel, *The Weather in the Streets*, 1936, *The Ballad and the Source*, 1944, and *The Echoing Grove*, 1953. *The Gipsy's Baby*, 1946, is a book of short stories, and *No More Music*, 1939, a play. A sensitive and brilliant writer, she excels in depicting the thought-processes of adolescent girls.



**Lehmann, Rudolf Chambers** (1856-1929), Journalist and oarsman, b. Sheffield. Educ. at Highgate and Trinity College, Cambridge, he founded the *Granta* magazine. Famous for his rowing, he acted as coach to the varsity crews. In 1880 he was called to the Bar at Inner Temple, and from 1890 to 1919 he was on the staff of *Punch*. From 1906 to 1910 he was Liberal M.P. for Market Harborough. Besides sev. other books, he pub. *The Complete Oarsman* in 1908.

**Lehmbruck, Wilhelm** (1881-1919), Ger. sculptor and painter, b. Duisburg. He came of a peasant family, but in early youth was apprenticed to a commercial firm of metalworkers. In 1901 a grant enabled him to study art at the Dusseldorf Academy under the direction of Peter Janssen. Finishing at the academy in 1906, he travelled in France and Italy during the next 8 years. Thereafter he lived mainly in Berlin until his death by suicide. In his work he strove to express the spiritual and psychological aspects of his subject through his medium and was not deflected from this end by the pursuit of realistic representation. He is remembered particularly for his sculpture of the female figure, in which an attenuated form romantically conveys feeling and idealism. Works by him were shown posthumously in an exhibition of Ger. artists in Paris in 1927, and he is represented in the museums in Berlin, Munich, and other Ger. towns, and also in New York.

**Leibnitz, Gottfried Wilhelm, Freiherr von** (1646-1716), Ger. philosopher and mathematician, b. Leipzig. In 1661 he entered the univ. of Leipzig as a law student, and in 1666, being refused his doctor's degree on account of his youth, he applied to the univ. of Nuremberg, Altdorf, which not only conferred upon him his degree but offered him a professorial chair. At Nuremberg he made the acquaintance of Baron von Boineburg, who advised him to dedicate his treatise, *Nova methodus docendi discendique juris*, a proposal for the reform of the *Corpus Juris*, to the elector of Mainz. In this way the young man attracted the attention of the elector and entered his service. At first L. assisted in the revision of the statute book. In 1669 he was required to promote by argument the Ger. claims to the vacant throne of Poland, but his *Specimen demonstrationum politicarum pro rege Polonorum eligendo* had not the desired effect, and a Polish prince was elected. At this time Germany was in danger of attacks by the aggressive Louis XIV. and, in order to divert his attention from any such projects, he was approached with a scheme of L. for the Fr. conquest of Egypt. In 1672 L. was summoned to Paris to propound more fully the scheme he had laid down in *De expeditione Aegyptiaca* and *Consilium Aegyptiacum*. It is believed that Napoleon conceived his plan for the invasion of Egypt (1798) on finding the *Consilium* in Hanover. In Paris L. made the acquaintance of Christian Huygens, who spurred him on to a deeper study of mathematics. Here,

too, he became the friend of Arnaud and Malebranche, and during his visit to London he met Newton, Boyle, and Oldenburg. He invented an intricate calculating machine, for which he was elected a fellow of the Royal Society of London in 1673. About the same time he discovered a new method of the differential and integral calculus, which Newton also claimed as his invention. On his return to Germany in 1673, L. left the service of the elector of Mainz, and placed himself under Duke John Frederick of Brunswick-Lüneburg, who, in 1676, appointed



FREIHERR VON LEIBNITZ

him librarian at Hanover. He was also employed to write a hist. of the house of Brunswick, and visited the libraries of the chief cities of Germany, Austria, and Italy to collect his materials. He was much interested in the suggested union between the Rom. Catholic and Protestant churches, and contributed to the discussion his *Systema ethologicum*, written in 1686, but not pub. till 1819. In 1700 Frederick I of Prussia, at his instigation, founded the Akademie der Wissenschaften at Berlin, and L. was elected president for life. While on a visit to Vienna, 1712-14, he was elected an imperial privy councillor and made a baron (*Reichsfreiherr*) of the empire. On his return he found that the Elector George of Hanover had been created King of England, and though he would have liked to accompany his master to London, he was obliged to remain behind to finish his hist. Two years later he d.

In 1696 L. wrote his *Nouveaux Essais sur l'entendement humain*, 1765, which is a critical analysis of Locke's *Essay on the Human Understanding*, pub. in 1690. In 1710 he pub. *Essais de Théodicée sur la bonté de Dieu, la liberté de l'homme, et*

*l'origine du mal*, and in 1714 appeared *La Monadologie* and *Principes de la nature et de la grâce*. L. had read widely, and, having assimilated various philosophical systems, his own is somewhat eclectic. It stands between the dualism of Descartes, who separated all things into 2 heterogeneous substances, and the monism of Spinoza, who held that all are absorbed in one divine substance. In L.'s doctrine of substance the universe consists of simple and similarly constituted monads, which differ in quality but are all alike in being percipient and self-active. These series of monads, though acting independently, are all in harmony with each other and with God, who is the prime and efficient cause of all things. He held that the ultimate reality of substance is force, each monad having an inherent striving property, the ultimate aim of God's universe being perfection. He recognised the presence of evil, but believed in its final suppression, thus contending that this is the best possible world, and that faith and reason are essentially harmonious. See also INNATE IDEAS.

The complete ed. of L.'s works, ed. by the Prussian Academy (1923 ff.), is still unfinished. See B. Russell, *A Critical Exposition of the Philosophy of Leibniz*, 1900, 1937.

**Leicester, Earl of**, see MONTFORT, SIMON DE.

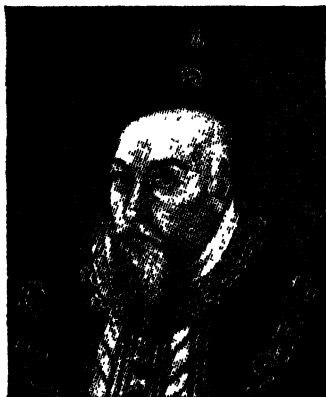
**Leicester, Robert Dudley, Earl of** (c. 1532-88), Eng. courtier, fifth son of John Dudley, Duke of Northumberland, and a favourite of Queen Elizabeth I. He married Amy Robsart in 1550. His father was executed for supporting Lady

1560 his wife met her death in mysterious circumstances, public opinion believed L. guilty of at least planning her murder, though a coroner's jury returned a verdict of death by misadventure. After this scandal Elizabeth gave up all thought of marrying L., though he continued to be her favourite until his death, being created Earl of L. in 1564. He entertained Elizabeth sumptuously at Kenilworth in 1575. L. seems to have had little influence with Elizabeth in political affairs, but in 1585 she placed him in command of an expedition to the Netherlands, and in the following year he was appointed governor. In this position he showed himself thoroughly incapable, and was recalled in 1587, dying the following year. L. secretly married Lady Sheffield, 1573, and bigamously married the Countess of Essex, 1578. See E. Bekker, *Elizabeth and Leicester*, 1890.

**Leicester, Thomas William Coke, 1st Earl of** (1754-1842). He was member of Parliament for Norfolk from 1776 until 1806, and again from 1807 until 1832. He became a farmer on a large scale, gaining wide fame by his improvements in crops and in the breeding of cattle and sheep. He became, in 1837, Earl of L. L. was known familiarly as Coke of Norfolk. See A. M. W. Stirling, *Coke of Norfolk and his Friends*, 1907.

**Leicester**, co. tn of Leics, England, 97½ m. by rail from London. In the Rom. period L. (or *Ratae Coriannorum*) was evidently a large and wealthy tn, and rich mosaic or tessellated pavements have been found. After the Rom. withdrawal L. was called by the Saxons *Legerceastre* and became until 874 a bishop's see. The bishopric was transferred to Dorchester (Oxon.) during the Dan. invasion, when the Danes held L., Derby, and other midland tns. At the Domesday survey L. had 322 houses and 6 churches, and a pop. of about 2000. The hist. of 12th-cent. L. was closely identified with that of the Beaumont family, which was responsible for the building of the church of St Mary de Castro and the great hall of the castle, where Parliament met in 1426 and again in 1450. Henry II besieged L., partially destroying the tn and demolishing the walls. In 1201 a meeting of barons took place in L., which was to prove a forerunner to the meeting in 1215 at Runnymede. By then the anct portmoot had already developed into an oligarchy consisting of the mayor and a self-constituted corporation. The guild merchant, the anct equivalent of the present-day chamber of commerce, gradually merged with this corporation, and this amalgamation of council and chamber of commerce governed L. for cents. In the Civil war L. was for Parliament, and although taken by Prince Rupert it was retaken by Cromwell after the battle of Naseby. It was during the early years of the ensuing Puritan rule in England that Wm Lee (q.v.), a country curate of Notts, was experimenting with a knitting-frame with 12 needles.

The earliest castle at L. was probably



ROBERT DUDLEY, EARL OF LEICESTER

Jane Grey in 1553, and L. himself was imprisoned in the Tower. On the accession of Elizabeth he was released, and soon became the queen's favourite. It seems probable that Elizabeth would have married him had he been free; when in

erected by Robert, Count of Meulan, the first of the 4 Beaumont overlords who ruled L. throughout the 12th cent. While it remained a residence the castle was enlarged and improved from time to time, but after 1399, when Henry IV, who was Duke of Lancaster and Earl of L., ascended the throne, the building was allowed to fall into decay. The great hall, however, has survived from the Norman period, and is incorporated in the present structure, erected in the 18th cent. Courts of justice are still held there. Close to the castle is the church of St Mary de Castro. There was possibly a church on this site before the Norman Conquest; when later the castle was founded the church, while retaining its parochial character, became the castle chapel. Much of the present building, including the chancel, belongs to the 12th cent., but the building received considerable alterations and additions at later dates. The church of St Martin was in a special sense the civic church of the old bor. from the 14th cent. onwards, and was chosen to be the cathedral when the new diocese of L. was formed. Near it is the old guildhall and library. The earliest portions of the old guildhall were erected towards the end of the 14th cent. by the Corpus Christi Gild, an important religious fraternity which had its chapel in St Martin's Church. The building remained the official H.Q. of L. until 1876, when the present in hall was opened. Near St Martin's is St Nicholas's Church, with a Saxon nave and Norman tower, partly built of Rom. material. Immediately W. of this church is a fine stretch of Rom. work known as the Jewry Wall. As a result of excavations in 1936-8, the theory was advanced that this was the W. wall of a basilica of the Rom. town, the rest of the building lying under the church, and the Rom. Forum to the W. of this wall. This view has in recent years been strongly challenged, supporters of the alternative theory maintaining that the Jewry Wall was part of the 2nd-cent. public baths, the undoubted foundations of which may be seen in the middle of the supposed 'forum.' Other excavations have revealed the ground-plan of part of the abbey of St Mary in the Meadows (de Pratis), better known as L. Abbey, founded 1143 for canons regular of the order of St Augustine, at Abbey Park. Near by is Belgrave Hall (c. 1709-13), now a period museum. Adjoining it is a botanical garden. In the area called the Newark is the almshouse, Trinity Hospital, originally founded in 1331 by Henry, 3rd Earl of L. The main part of the hospital chapel is the original building of 1331, and portions of the old arcades remain embedded in the present modern structure. The Newark gateway (14th cent.) was the main entry to an eccles. enclosure which contained the church of the Annunciation and its collegiate buildings, now destroyed, together with the associated almshouses and infirmary known as Newark Hospital. In the Newark also is the Newark Houses Museum, an early 17th-cent. house

with later additions now used as a museum of the social hist. of the city and co. Modern L. also has some fine buildings; apart from the tn hall, De Montfort Hall for meetings and large concerts is impressive. In Victoria Park is the war memorial designed by Sir Edwin Lutyens. L. Univ. received full univ. status in 1957.

The staple trades of L. are engineering, hosiery, and boot and shoe manufs.; but there are many other well-established industries, including printing, tobacco, spinning, tanning, and the manuf. of agric. machinery for the surrounding agric. dist. L. is the greatest hosiery producing centre in Britain and the greatest centre in the world of the knitwear industry. Many local industries are ancillary to the staple trades, e.g. the tanning and dressing of upper and lining leathers. Some of the biggest engineering firms in the city are concerned with the manuf. of boot and shoe and hosiery machinery; but there are numerous other engineering activities: typewriters, woodworking machinery, machine tools, lenses and optical instruments, scientific and surgical instruments, electric vehicles, electric clocks, heating and ventilating equipment, cranes, lifts, cinema equipment, electric transformers, gas-meters, turbo-generators, concrete and road-making machinery, aluminium hollow ware, laundry and dyeing plant, lawn mowers, bakery equipment, watches, fountain pens, etc. Allied trades include sheet metal works, iron and brass foundries, and the largest pattern-making shop in the country. Near the city are factories concerned with research and manuf. of jet engines. The bor. sends 4 members to Parliament. Pop. 287,300. See P. W. Bryan, *A Scientific Study of the Leicester District*, 1933.

**Leicester Breed**, see SHEEP.

**Leicester University**, founded 1918 and granted a royal charter of incorporation as a Univ. College in 1950, with courses leading to the external degrees of London Univ. In Mar. 1957 it was granted full univ. status. There are some 730 students.

**Leicestershire**, midland co. of England. The chief physical feature of the co. is the broad valley of the R. Soar, which runs S. to N. and separates the Charnwood Forest (q.v.) area of the NW. from the uplands of the E.; the latter are again divided by the R. Wreake valley running E. to W. The highest elevation is Bardon Hill (912 ft) in Charnwood Forest. The prin. rivs. are the Soar and the Wreake, though the Trent touches the NW. boundary of the co. near Castle Donington, and the Welland the SE. boundary by Market Harborough. There is only slight evidence of prehistoric settlement in the co., but excavations in the city of Leicester have revealed remains of the Rom. city *Itatae Coritanorum* which stood on the Fosse Way. In the 9th cent. the dist. was in the hands of the Dan. invaders, and the many place-names of Scandinavian origin perpetuate evidence of the Dan. occupation. L. was famous for its wool as early as 1343 and, with the

introduction of the hand knitting frame in the 17th cent., the co. soon estab. itself as the main area for hosiery in the country. Nearly the whole co. is under cultivation, its pastures being especially good. During the Second World War a considerable amount of pasture land was put under the plough for the first time for cents., but since the termination of the war there has been a tendency for it to revert to pasture. In 1953, 213,999 ac. were under tillage and 231,028 ac. were pasture. Cattle are reared extensively and the co. is famous for its New Leicester sheep, first bred in the 18th cent. by Bakewell at Dishley, near Loughborough. Dairy farming is carried on extensively in the Vale of Belvoir and in the area around Melton Mowbray, the home of Stilton cheese. L. is well known for fox-hunting and is the co. of the Quorn, Fernie, and Atherstone hunts. There are considerable mining industries, including coal in the region of Coalville, Moira, and Bagworth to the W. and NW. of Charnwood Forest; limestone at Barrow-on-Soar and Breedon-on-the-Hill; ironstone in the NW.; and granite at Mountsorrel, Enderby, and Stoney Stanton. Mountsorrel granite is world-famed, and the skill of the Mountsorrel sett-makers has been carried to all parts of Britain and the U.S.A. The hosiery industry is still important, and chief centres are at Leicester, Loughborough, Earl Shilton, and Hinckley. Boots and shoes are manuf. in some 13 tns and vils. in addition to the city of Leicester. There are also brickfields and ironworks at Holwell and Asfordby, and considerable engineering works at Loughborough and Leicester. L. contains 6 hundreds, and returns 8 members to Parliament (4 for the administrative co. and 4 for the city of Leicester). Area 832 sq. m.; pop. 630,893 (city and co.). See the *Victoria County History of Leicester*, vols. i to iii, 1907-55.

**Leicestershire Regiment, The Royal.** This regiment, the old 17th Foot, was raised in 1688, and fought under William III in Ireland and Flanders (Namur, 1695). During the Seven Years War it took part in the siege of Louisbourg, Cape Breton, and later of Havannah. It served in the Amer. War of Independence. In 1804 it went to India and distinguished itself in the first Afghan war (1839). In the Crimea it fought at Sevastopol, then went back to India for the second Afghan war (1878-9). It formed part of the garrison defending Ladysmith during the S. African war (1899-1902). During the First World War it raised 19 battalions which served in France, Flanders, Palestine, and Mesopotamia. It was granted the badge of the Royal Tiger, superscribed 'Hindoostan,' for distinguished service in India. In the Second World War the regiment formed part of the Brit. forces which fought in Malaya in 1941-2 against the Jap. invaders. Other battalions formed part of the Brit. Eighth Army on the It. front. The title Royal was granted in 1946.

**Leiden, see** **LEYDEN.**

**Leile, see** **LYS.**

**Leif Ericsson, see** **ERICSSON.**

**Leigh, Vivien (née Vivien Mary Hartley)** (1913-), actress, b. Darjeeling, India; married (1) Herbert Leigh Holman (marriage dissolved), (2) Sir Laurence Olivier (q.v.). She studied at the Comédie Française and for a short time at the Royal Academy of Dramatic Art, and appeared first in films, making her début in 1934 as a schoolgirl in *Things Are Looking Up*. She made her first appearance on the stage at the 'Q' Theatre, 1935, as Giusta in *The Green Sash*, and had a most sensational success at the Ambassadors Theatre, 1935, as Henriette in *The Mask of Virtue*. Many other parts followed and in 1937 she went with the Shakespearian company to Denmark to play Ophelia in *Hamlet* at Elsinore—the Hamlet being Olivier. In Hollywood she scored a phenomenal success as Scarlett O'Hara in *Gone with the Wind*—one of the most widely talked of and popular films of recent times and many times revived. Among her subsequent notable successes on both sides of the Atlantic were *The Doctor's Dilemma*, *The Skin of Our Teeth*, and *A Streetcar named Desire*. In 1951 she played Cleopatra in both Shaw's *Cæsar and Cleopatra* and Shakespeare's *Antony and Cleopatra* at the St James's Theatre with Sir Laurence Olivier, and in 1955 she joined the Stratford-on-Avon Shakespeare Memorial Theatre Company.

**Leigh, tn in Lancs, England, 7 m. SW. of Bolton,** has extensive textile manufs. Coal is found in abundance. Parsonage colliery, the deepest in Britain, has been used for research on the relation between depth and the magnetism of the earth. The tn stands on a branch of the Leeds and Liverpool and Bridgewater Canals. Pop. 48,714.

**Leigh-Mallory, George** (1887-1924), Eng. mountaineer, educ. at Winchester and Cambridge. Master at Charterhouse, 1910; served with Heavy Artillery, 1915-1918; secretary and lecturer to the board of extra-mural studies, Cambridge, 1923. A great mountaineer, who began Alpine climbing in 1904. (Papers in *Alpine Journal*, vols. xxii, xxxiii). He took a leading part in reconnaissance of Everest (q.v.). 1921, reached nearly 27,000 ft without oxygen in 1922. In 1924 he and his companion Irvine were almost certainly seen about midday through a gap in the clouds, climbing the NE. ridge of Everest at over 28,000 ft; they were not seen again. His writings show a high appreciation of mountaineering as a conquest of mind over matter, the physical achievement only a means to enlargement of the soul. He wrote parts of *Mount Everest, The Reconnaissance*, 1921, and *The Assault on Mount Everest*, 1922. See life by D. Pye, 1927.

**Leigh-on-Sea, see** **SOUTHEND-ON-SEA.**

**Leighton, Frederic Leighton, Baron** (1830-96), painter and sculptor, b. Scarborough. At Florence he studied under Bezzuoli, Servolini, and Zanetti. After 4 years there he went to Frankfurt,

visited Brussels and Paris, then settled down to study under Eduard von Steinle. His first picture to attract attention in England was 'Cimabue's Madonna, carried in Procession through the Streets of Florence,' which was exhibited in the Royal Academy in 1855, and which was bought by Queen Victoria. The following year he sent another picture, 'The Triumph of Music,' but it was not so successful, and he did not exhibit again until 1858. In 1866 he moved into his now famous house at Holland Park Road, containing the celebrated Arab hall with Damascus tiles, which is now open to the



W. F. Mansell

FREDERIC LEIGHTON  
(Self-portrait.)

public as L. House. Among his earlier pictures was the popular 'Wedded,' but it was in his treatment of classical subjects that L. especially excelled. L. was elected an Academician in 1868, and exhibited his diploma picture, 'St Jerome,' in 1869. He became president in 1878, when he was knighted, being raised to the peerage a few days before his death. L. excelled as a sculptor; his 'Athlete struggling with a Python,' 1877, was purchased by the Chantrey Bequest, 'The Sluggard' and 'Needless Alarms' being exhibited in 1886. As an illustrator he also did good work, especially for the cuts to Dalziel's Bible, and a series of illustrations for George Eliot's *Romola*, which reveal an unsuspected sense of humour. His decorative work may be seen at the Victoria and Albert Museum in the fresco 'The Industrial Arts of War and Peace,' also his 'Cimabue' in mosaic. Lyndhurst Church also possesses mural decorations illustrating 'The Parable of the Wise and Foolish Virgins,' to the memory of Peppys Cockerell. L. possessed many foreign orders and distinctions, and belonged to all the prin. foreign academies.

His varied talents, wide knowledge, and personal charm set him on a pinnacle, though the perfection of his work falls short of greatness to modern eyes. See Mrs A. Lang, *Art Annual*, 1884; C. Monkhouse, *British Contemporary Artists*, 1899; Lt. Barrington, *The Life, Letters, and Work of Frederick Leighton*, 1900; also lives by E. Rhys, 1900, and G. C. Williamson, 1902.

**Leighton, Robert** (1611–84), Archbishop of Glasgow. From 1641 to 1652 he had the care of a Presbyterian church in Newbattle, Midlothian, and from 1653 to 1661 was principal and prof of divinity in Edinburgh Univ. For 9 years from 1661 he held the bishopric of Dunblane, and in 1671 accepted from Charles II the archbishopric of Glasgow, his mission from the king being to induce the Presbyterian clergy to become reconciled with their episcopal brethren. He resigned in 1672 but his resignation was not accepted until Aug. 1674. His works, with a life, were pub. by J. N. Pearson in 1830. See G. Burnet, *History of his Own Times*, 1723–1734; also life by F. A. Knox, 1930.

**Leighton Buzzard**, anct franchise mktk tn of Beds, England, centre of an agric. and farm produce area with weekly cattle markets, 40 m. NNW. of London. The prin. industries are sand quarrying (over 100 varieties) and tile-making, and there are clothing manufs. and light engineering. There is a fine Early Eng. cruciform church and a market cross. Pop. 9000.

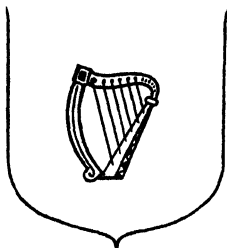
**Leinhall**, see COLDESTREAM.

**Leiningen**, former principality of Germany, dating back to the 11th cent. After the peace of Luneville (q.v.) in 1801, the greater part of its ter. was shared between Baden, Hesse, and Bavaria (qq.v.).

**Leinster**, SE. prov. of Rep. of Ireland, comprising the cos. of Dublin, Kildare, Carlow, Kilkenny, Laoighus (or Leix), Offaly, Longford, Louth, Meath, Westmeath, Wicklow, and Wexford. The MacMurroughs were kings of L. down to the early years of the 12th cent. Their descendants ruled independently in Wexford and Carlow till the 16th cent. Richard Strongbow accepted L. from Henry II as a fief of the Crown. Area 7580 sq. m.; pop. 1,336,576.

**Leinster Regiment**, The, formerly 100th and 109th Regiments, which were linked in 1881. The 100th was raised in 1857 from Canadian volunteers at the time of the Indian mutiny, hence its title 100th or Prince of Wales's Royal Canadians. Its Canadian origin was represented by a maple leaf in each of the 4 corners of the regimental colour. The 109th was raised as the 3rd Bombay European Infantry, and served under Sir Hugh Rose in central India during the Indian mutiny. The joint regiment served during the S. African war, 1899–1902. During the First World War it raised 7 battalions, which served in France, Flanders, Macedonia, Gallipoli, and Palestine. After the inauguration of the Irish Free State the regiment was disbanded on 31 July 1922. See Lt.-Col.

F. E. Whitton, *The Prince of Wales's Leinster Regiment (Royal Canadians)* (2 vols.), 1924.



THE ARMS OF LEINSTER

**Leipa**, see ČESKA LÍPA.

**Leipzig**: 1. Dist. (*Besirk*) of the Ger. Democratic Rep. (E. Germany), bounded on the W. and N. by Halle, on the E. by Kottbus, on the S. by Karl-Marx-Stadt, and on the SW. by Gera (q.v.). It was formerly part of Saxony (q.v.). Area 1915 sq. m.; pop. 1,596,000.

2. Ger. city, cap. of the dist. of L., on the White Elster (q.v.) at its confluence with the Pleisse and Parthe, 90 m. SW. by S. of Berlin. It grew up around a fort erected by the Emperor Henry I on the site of a Wendish settlement, and it developed rapidly into an important trading tn. It suffered severely during the Thirty Years War (the battles of Lützen and Breitenfeld (qq.v.) were fought near by). During the Napoleonic wars (see NAPOLEON I) it was the scene of the great Fr. defeat of 16-19 Oct. 1813. In the Second World War it was on sev. occasions attacked by allied bombers at the same time as Dresden and Chemnitz (Karl-Marx-Stadt); in Feb. 1945 devastating raids on L. assisted the 1st Ukrainian Front armies of Marshal Koniev (q.v.) in their invasion of Silesia. The city fell to the First Amer. Army on 17 April 1945. Broad walks (on the site of the old city walls) divide the picturesque inner tn from the modern part of the city. Among the buildings of interest are the Nicolaikirche (11th-16th cents.); the Thomaskirche (13th-15th cents.), where J. S. Bach (q.v.) was organist; the old Rathaus (16th cent.); the Gewandhaus (rebuilt 1884), originally a guild house and afterwards famous for its concerts; and Auerbach's Keller, an inn in which a scene of Goethe's (q.v.) *Faust* is placed. The univ. of L., founded in 1409, was formerly one of the greatest in Europe; and the academy of music, founded by Mendelssohn (q.v.) in 1843, testifies to L.'s past as a cultural centre. Among other musical and literary figures of note who were connected with the city were Schumann, Gottsched, Gellert, Lessing, and Schiller (qq.v.). Until the Second World War L. was the centre of Ger. publishing. After 1879 it was the site of the Ger. Supreme Court (*Reichsgericht*). It has 2 important

industrial fairs, a trade in furs, and engineering, textile, foodstuff, and chemical industries. Pop. 620,000.

**Leiria**: 1. Dist. of W. central Portugal, in Beira Litoral and Estremadura provs. (q.v.). There is a coastline on the Atlantic, and the centre of the dist. is hilly. Agriculture and fishing are the chief occupations. Area 1307 sq. m.; pop. 389,200.

2. City of Portugal, cap. of the dist. of L., on the Liz, 75 m. N. by E. of Lisbon. It has a Moorish castle and a Romanesque church. The tn is the seat of a bishopric. There are leather and cement industries, and there is a trade in agric. produce, wine, and oil. Pop. 7500.

**Leishman, Sir William Boog** (1865-1926), bacteriologist, b. Glasgow, son of the regius prof. of midwifery there. L. was educ. at Westminster School and Glasgow Univ., where he qualified in 1886. Next year he entered the Army Medical Service. From 1890 to 1897 he served in India, and in 1899 was given charge of the medical wards at Netley military hospital, spending his spare moments in the pathological dept, then in the charge of Almoth Wright (q.v.). Here he saw the early development of Wright's anti-typhoid vaccine. When the Army Medical School moved to Millbank, London, in 1903, L. was appointed prof. of pathology, a post he held until Jan. 1914, when he became War Office expert on tropical diseases. During the 1914-18 war he served in various capacities and in June 1919 became the first director of pathology at the War Office. Finally, in July 1923 he was appointed medical director-general of the Army Medical Service, with the rank of Lieutenant-general. He was knighted in 1909. In 1901 L. elaborated a stain for blood, now known by his name; he used it to detect the parasite of kala-azar (dum-dum fever, oriental sore, and later leishmaniasis, and the parasite was later named *Leishmania donovani* after L. and a co-discoverer, C. Donovan. At Millbank L. perfected the anti-typhoid vaccine and was instrumental in preventing this disease from attaining serious proportions during the First World War. Another piece of important work was his demonstration of the life cycle of *Spirochaeta duttoni*, the causal organism of relapsing fever. See memoir in *Journal of Pathology and Bacteriology*, vol. xlix. 1926, page 515.

**Leisnig**, Ger. tn in the dist. of Leipzig, on the Freiburger Mulde, 26 m. ESE. of Leipzig (q.v.). It has textile and engineering industries. Pop. 10,000.

**Leiston**, or **Leiston-cum-Sizewell**, seaside tn of Suffolk, England, 21 m. SSW. of Lowestoft. Industries are engineering, radio manuf., and canning. The ruins of St Mary's Abbey date from the 12th cent. Pop. 4100.

**Leitch, Archibald** (1878-1931), physician and bacteriologist, b. Bute and educ. at Rothesay Academy and Glasgow Univ. His earliest work in London was in the cancer research laboratories of the Middlesex Hospital, and it is for his work in

cancer research that he will be remembered. In the First World War he was in charge of a mobile bacteriological laboratory; in 1920 he was made director of the research dept at the Royal Cancer Hospital, and in 1927 he was appointed to the chair of experimental pathology in London Univ. tenable at that hospital. Perhaps his best work was in the study of mule spinners' cancer and the cancers induced by tar, shale-oil, and other carcinogenic substances.

**Leith**, port of Edinburgh, Scotland, on the S. shore of the Firth of Forth, now an integral part of the city of Edinburgh (q.v.), with which it was incorporated in 1920. It has much traffic with the ports of Antwerp, Copenhagen, and Christiansand, etc. The harbour, dock, and warehouse accommodation is excellent. Shipbuilding, distilling, engineering, soap-boiling, and sugar-refining are the chief industries.

**Leith Hill**, highest point in SE. England, 1 m. from Coldharbour, near Dorking, Surrey. Height 965 ft. From the top of the tower on the summit 13 cos. can be seen.

**Leitmertitz**, see LITOMĚŘICE.

**Leitmotiv** (Ger., 'leading motive'), musical term used to describe a distinctive phrase symbolising persons or ideas in an opera or (more rarely) a symphonic poem or other programme music. It was first developed extensively by Wagner for the basic material of his musical dramas, but not actually invented by him, for themes of this kind appear in operas by Mozart, Weber, and others.

**Leitrim**, maritime co. of Rep. of Ireland, in the prov. of Connaught, bounded NW. by Donegal Bay. The surface of the co. varies, the N. being mountainous, the S. more or less level; the scenery is extremely beautiful. In the N. are the Druskmore Hills, and E. of Lough Allen is Slieve Anierin (1922 ft), the highest point of the co. The chief rivs. are the Shannon, the Bonnet, the Drowes, and the Duff. There are numerous loughs, of which Lough Allen (8900 ac.) is the largest, the trout fishing being very good. A small quantity of coal is found, and iron and lead are abundant in the mountainous parts, but the co. is not very productive; the soil is moist and heavy, and the grain crops are poor. Potatoes are grown and some cattle and sheep are reared. Linen and woollens of a rough kind are manuf., and there are some potteries. L. is divided into 5 baronies, but the only tns of importance are Carrick-on-Shannon and Manor Hamilton. The tn of L. is a few miles N. of Carrick-on-Shannon. Three members are elected to the Dail. Area 619 sq. m.; pop. 44,500.

**Leix**, see LAOIGHIS.

**Lekue, Guillaume** (1870-94), Belgian composer, b. Housy, Verviers. He studied with César Franck (q.v.), and later under d'Indy and gained second prize in the Prix de Rome competition. L. was regarded as promising to become the leading representative of the Belgian school had he lived long enough to fulfil his promise.

His most memorable works are a symphonic study, *Hamlet. Fantaisie sur deux airs populaires angevins* for orchestra, *Adagio* for strings, a string quartet, a piano trio, a piano quartet (finished by d'Indy), and a violin and piano sonata.

**Leland, Charles Godfrey** (1824-1903), Amer. poet and folklorist, b. Philadelphia. He was admitted to the Bar in Philadelphia in 1851, but soon devoted all his time to literary work of an editorial and journalistic nature. Gipsy language and hist. was one of his special studies, and he also obtained a reputation as a Ger. scholar. In 1861 he estab. the *Continental Magazine* in Boston. L.'s best-known work is *Hans Breitmann's Ballads*, 1914, recounting the numerous diverting adventures of their hero, told in the patois termed Pennsylvania Dutch. He was also the author of *Sunshine in Thought, English Gypsies and their Language, English Gypsy Songs* (with E. H. Palmer and Janet Tucker), and *Autobiographical Memoirs*. See life by E. R. Pennell, 1905.

**Leland, John** (c. 1506-52), antiquary, b. London, was educ. at St Paul's School, Christ's College, Cambridge, All Souls' College, Oxford, and Paris. Taking holy orders, he became chaplain and librarian to Henry VIII in 1533, and received the commission of king's antiquary, with power to search for records, MSS., and documents of antiquity in all the religious houses of England. In 1536 he was made canon and prebend of King's College, Oxford, and a prebend of Salisbury. Most of L.'s work was in MS. at the time of his death, the bulk being deposited by Burton in the Bodleian at Oxford. His most important works are the *Itinerary*, a record of his extensive and well-described antiquarian travels in England and Wales (pub. by T. Hearne, 1710-12); the *Commentarii de Scripturibus Britannicis*, 1709, and *De Rebus Britanniae Collectanea* (pub. by T. Hearne, 1715). See lives by E. Burton, 1549, and W. Huddesford, 1772; also J. Bale, *Catalogues*, 1557; L. T. Smith, *The Itinerary* (5 vols.), 1907. The best general account of L.'s achievements and background is in T. D. Kendrick's *British Antiquity*, 1950.

**Leleges**, anct race, often mentioned, with the Pelasgians, as the most anct inhab. of Greece. Piracy is said to have been their chief occupation. They are represented as the ancestors of the Teleboans and the Taphians, who were notorious for their piracies. The L. are described in the *Iliad* as a tribe in SW. Troas, and as allies of the Trojans.

**Lelewel, Joachim** (1786-1861), Polish historian, b. Warsaw. He became lecturer in hist. at Vilna, 1814, being dismissed in 1821 on suspicion of having taken part in secret revolutionary proceedings. In 1829 he became a prominent leader of the Polish revolution, and on its failure fled to France. His chief work is the series of books collected under the title of *Poland, her History and Affairs Surveyed* (pub. in 20 vols.), 1853-76. See monographs by S. P. Koczowski, 1927, and A. Sliwinski, 1932.

**Lely, Sir Peter** (1618-80), Dutch painter, b. Soest, near Utrecht, studied in Haarlem under F. P. de Grebber. When William of Orange came to England in 1641 L. was in his train. L. painted many portraits of William and his bride Mary, which were much admired in England, and he was soon appointed one of the court painters. Perhaps the temporary absence of Van Dyck tempted L. to try his fortune in this country, and, with the favour bestowed upon him by the court, and his general popularity, he soon established a large practice.

When L. arrived in England he immediately dropped the Dutch style of painting for that of Van Dyck. When the monarchy was overthrown, and during the period of Puritanism that followed, L. altered his style to one of 'dour severity'; but it was during the Restoration that L.'s full powers were revealed. After the period of restriction a burst of exuberance followed, in which L. excelled, and he dominated the 17th-cent. group of Stuart portrait painters by his facile grace of style. Much favoured by Charles II. he was knighted in 1679. During the Restoration period L. painted his best works, namely, the 2 great series, the 'Flagmen' and the 'Windsor Beauties.' In the latter L. was successful in bringing out the sensual attraction of his sitters. He was buried in the Covent Garden church of St Paul, and was succeeded at court by Sir Godfrey Kneller. See C. Baker, *Lely and the Stuart Portrait Painters*.

**Lemaître, François Élie Jules** (1853-1914), Fr. critic and writer, b. Venecy, Loiret. From 1875 to 1879 he was prof. of rhetoric at the lycée of Le Havre, and from 1879 to 1881 prof. at the École des Lettres, Algiers. He first came to the notice of the public in 1880 with a small vol. of verse, entitled *Les Médailles*, followed, in 1882, by *La Comédie après Molière*, and in 1883 by *Petites orientales*. In 1884 he held a professorship at Grenoble, which, however, he soon abandoned, and devoted himself exclusively to literary work. In 1895 he was elected a member of the Fr. Academy. Besides the works already mentioned he pub. *Les Rois Sérénus*, 1886, *Les Contemporains*, 1887, *Impressions de théâtre*, chiefly literary essays, 1888-1920, *Myrrha*, 1894, *Contes en marge des vieux livres*, fiction, 1905, 1907, and the plays *Les Rois*, 1893, *Révolte*, 1895, *Le Pardon*, 1895, *L'Ainée*, 1898, *La Massière*, 1905, *Bertrude*, 1906, and *La Vieillesse d'Hélène*, 1914. See L. Grimm, *Lemaître als Kritiker des französischen Theaters*, 1927, and S. Seillière, *J. Lemaître, historien de l'évolution naturaliste*, 1935.

**Leman, Gerart Mathieu Joseph Georges** (1851-1920), Belgian general, was, before the First World War, director of studies at the military school at Brussels, with considerable repute as a mathematician. He became general in 1912, and attained celebrity by his defence of Liège against the Ger. invader, Aug. 1914. On the 14th he was overcome by fumes of exploding

shells at Fort Loncin, and taken prisoner. He was created a count.

**Le Mans**, see MANS, LE.

**Lemberg**, see L'VOV.

**Lemercier, Jacques** (c. 1585-1654), Fr. architect, b. Pontoise, son of an architect; studied in Rome, 1607-c. 1613. Built the Pavillon de l'Horloge at the Louvre, Paris, 1624; then, for Cardinal Richelieu (q.v.), the château and town of Richelieu in Poitou, 1625-35; the Sorbonne, with its church, in Paris, 1629 onwards; the Palais-Cardinal, afterwards Palais-Royal, in Paris, 1629-36; and the château of Rueil, c. 1630. He also designed the church at Richelieu, the Oratoire and St Roch in Paris; and completed F. Mansart's church of Val-de-Grâce, Paris, 1646 onwards.



GENERAL LEMAN

**Lemery, Nicolas** (1645-1715), Fr. chemist, b. Rouen, was contemporary with Boyle. He is remembered as a skilful experimenter who, breaking with traditional alchemy, adhered closely to observed experimental fact. He became physician to Louis XIV. His *Cours de chimie*, a standard work for many years, was pub. in 1675.

**Lemming** (*Lemmus lemmus*), small rodent, belonging, like the short-tailed Eng. field-mouse and the water-rat, to the subfamily of voles (*Arvi colinae*), which is part of the family Muridae, in the order Rodentia. It has brownish-yellow fur, a short head, short, partially concealed ears, and a very short tail. In length it is about 5 in. and it has a blunted muzzle, black beady eyes, and dark brown or black spots on its back. L.s. abound in the plateaus above the pine belt in the mts of Norway and Sweden. They feed on grasses, lichens, and shoots of dwarf birch, and are never carnivorous. Their nests, which are built of straw and lined with hair, are hidden in the grass or under stones, and are inhabited by 5 young at a time; they breed at least twice in a year. About



every 3 years, after they have multiplied their numbers to a great extent, armies of these restless little animals march seawards, causing great destruction in their path, and drawing after them a host of eagles, wolves, foxes, and other predatory beasts. During these extraordinary migrations, which last from 1 to 3 years according to the distance to be traversed, they only travel by night. Thousands die by the way, and certain death awaits those which on reaching the sea, plunge in and, swimming onwards in the same direction, perish beneath the waves.

**Lemna**, genus of small floating herbs, family Lemnaceae, about 7 species, commonly known as Duckweed, native to Britain and N. Hemisphere. Fish and water-birds feed on them.

**Lemniscate** (Lat. *lemniscatus*, ribboned), curve invented by Jakob Bernoulli, occurring in many mathematical problems. It may be defined as the locus of a point moving so that the product of its distances from 2 fixed points is constant, and equal to the square of half the distance between those fixed points. From this definition it is easily deduced that its equation can be written in the form  $(n^2 + y^2)^2 = 2a^2(n^2 - y^2)$ , or in polar co-ordinates  $r^2 = 2a^2 \cos 2\theta$ , where  $2a$  is the distance between the fixed points (see Ovals). See H. Brocard, *Notes de bibliographie des courbes géométriques*, 1897-9.

**Lemnos**, or **Limnos** (modern, **Limni**), is. of the Grecian archipelago, midway between Mt Athos and the coast of Asia Minor. It is of irregular form and hilly, and presents volcanic formations. The coast is deeply indented but L. possesses a fine harbour at Mudros. It produces grain, oil, wine, fruits, and tobacco, and in former times the celebrated Lemnian earth was exported. It was at one time a possession of Athens. The chief port and town is Castro on the W. coast. (Gk mythology has it that when the Argonauts landed at L., they found it inhabited only by women, who had murdered their husbands. By the Lemnian women the Argonauts became the fathers of the Minyae, who were ultimately expelled by the Pelasgians. Darius conquered the is., but Miltiades delivered it from the Persians and made it subject to Athens. In 1478 it was taken by the Turks. The armistice with the Allies after the First World War was signed by the Turks at Mudros on 30 Oct. 1918. Area 184 sq. m.; pop. 28,000.

**Le Moine**, Sir James Macpherson (1825-1902), Canadian author, b. Quebec. Among his chief publs. are *Picturesque Quebec*, 1828, *L'Ornithologie du Canada*, 1862, *Les Pêcheries du Canada*, 1862, *Quebec Past and Present*, 1876, *Canadian Heroines*, 1887, *Legends of St Lawrence*, 1898, and *The Annals of the Port of Quebec*, 1901. He was knighted in 1897.

**Lemon**, Mark (1809-70), humorous writer, b. London. He wrote novels, farces, and melodramas, and was a prolific contributor to many periodicals. He ed. the *Family Herald* and *Once a Week*, but is best known as one of the

founders of *Punch*, over the destinies of which he presided from its birth in 1841 until his death. As editor of *Punch* he was the right man in the right place, and he surrounded himself with such valuable supporters as Thackeray, Jerrold, Leech, Keene, and Tennyson. He was an intimate friend of Dickens for many years. His *Jest Book* appeared in 1884.

**Lemon**, valuable fruit produced by *Citrus limonium*, a subtropical tree or shrub, and its many varieties. L. culture is the main industry in Sicily, but in many other dists. with suitable climates, including California and Rhodesia, the fruit is grown on a large scale. Like other citrus plants the L. grows well on greenhouse walls, and the fruit which is allowed to ripen on the tree is greatly superior to imported fruit gathered before the flavour could mature. The L. is distinguished from the citron by its thin rind, and is longer and less knobbed at the tip. The lime (q.v.) is more globular.

**Lemon Sole**, or **Smear Dab**, is the popular name of *Microstomus microstomus*, a species of flat fish belonging to the teleostean family Pleuronectidae. It is found from the Bay of Biscay to the N. coasts of Europe, and is widely consumed, its flesh, however, being inferior in flavour and firmness to that of *Solea solea*, the common sole, a member of the same family. The L. S. has both eyes on the right side of the head, the dorsal fin commencing above the eye; its skin is smooth and of a brownish-yellow colour, with light and dark spots.

**Lemonade**: 1. Still beverage made by expressing the juice of ripe lemons, diluting with water, sweetening and preferably icing, spices, mint, etc., sometimes being added.

2. Carbonated beverage with sugar and citric acid base, flavoured by soluble essence of lemon, sometimes blended with oranges, limes, or citron. Both are excellent thirst quenchers, especially when refrigerated.

**Lemonnier**, Camille (1845-1913), Belgian art critic and novelist, b. Brussels. His first book, *Salon de Bruzelles*, 1863, was a vol. of art criticism. The 'realistic' tendency of his studies of peasant life more than once involved him in trouble with the authorities. He was 3 times prosecuted on the same grounds, being once fined and twice acquitted. His other works include *Nos Flamands*, 1869, *Salon de Paris*, 1870, *Un Coin du village*, 1879, *Un Mâle*, 1881, *La Belgique*, 1888, *Théâtre*, 1899, *L'Amant passionnée*, 1905, *La Maison qui dort*, 1909, and *Edénie*, 1912.

**Le Moyné**, Charles, **Sieur de Longueuil** (1625-83), Canadian explorer, b. Normandy, first served in the Fr. Army, and then emigrated to Canada, where he became interested in colonisation. He lived for a time among the Hurons and obtained from them a concession to rebuild the fort at Niagara, which work he was engaged on when he d. Of his sons sev. were well-known pioneers. His son Charles (1656-1729) was at the defence of

Quebec in 1690. He was made a baron and governor of Montreal, 1700, and commandant-general of Canada, 1711.

**Lemoigne, François** (1688-1737), Fr. painter, *b.* Paris, studied under Galloche, and in 1711 won the Prix de Rome, with his picture, 'Ruth and Boaz.' In 1718 he became an academician. His title to fame rests chiefly on the decoration of the vault of the 'salon d'Hercules' at Versailles, 64 ft in length, and containing 142 pictures of great merit.

**Lemprière, John** (c. 1765-1824), Eng. classical scholar, *b.* Jersey, Channel Is. He took orders and became headmaster of schools in Abingdon and Exeter, and later held 2 livings in Devonshire. He is best known as the author of the classical dictionary, *Bibliotheca Classica* (first pub. in 1788), founded on Sabatier's *Dictionnaire des auteurs classiques*, and he also wrote a *Dictionary of Universal Biography*, 1808.

**Lemur**, name applied to members of the suborder Lemuroidea of the order Primates, and so called originally because of their nocturnal habits and rather ghostly appearance at night. They are divided into 3 families, and of these we have representatives in the black L., the dwarf L., grey slow Loris, and the slender Loris. The distinguishing characteristics of the typical L. are the thick woolly fur, dog-like snout and nostrils, and the structure and number of the teeth. The fourth digit of the hand and foot is the longest and the second digit of the foot bears a claw, used for scratching the skin. The true L.s (i.e. black L.) are not nocturnal. L.s are found in Madagascar and W. Africa, India, Malay, and Indo-China. They all inhabit trees, and their diet consists of fruit, birds and their eggs, small reptiles, and insects.

**Lemur(es)**, evil spirits who wandered about in search of mischief, distinguished from the 'manes,' or 'spirits of the dead,' by their wicked intent. The Romans sought to appease them during the festival of the Lemuria, held annually on 9, 11, and 13 May. The name was said to be a corruption of Remuria, which referred to Remus, being intended for the satisfaction of his shade. During it no man might marry, and all shrines and temples were closed. Ovid describes in his *Fasts* the curious rite which the paterfamilias performed. Rising at midnight he traversed his house with bare feet and washed hands, 9 times spat a black bean from his mouth, and with backward glance cried 'Thus I redeem me and mine.' The evil 'lemures' either picked up the beans, or else entered into them. Then the father washed again, beat kettles, clanged brazen vessels, and 9 times repeated the courteous request 'Manes exite paterni' (Shades of our fathers, depart). One had to exorcise these ghosts, as they alarmed good men, and haunted those of evil conscience. Some have detected elements of ancestor worship in this rite.

**Lena**, one of the largest rivs. of Siberia. Rising in the Baykalan Mts W. of Lake Baykal, it flows NE. to Yakutsk, then N. into the Laptev Sea of the Polar Ocean,

forming a large delta (over 10,000 sq. m.). Length 2870 m.; drainage area 943,400 sq. m. The main tribs. are Vitim, Olëkma, and Aldan on the right, Viluy on the left. In its upper and middle reaches the flows through mountainous country, in the lower through the central Yakutian lowland. Most of its basin is covered by coniferous forests, with perpetually frozen subsoil. Vitim (see БОДЫБО) and Aldan (q.v.) are gold-mining areas, and coal-mining is carried on near Yakutsk. The L. is navigable almost throughout its course for 4 to 5 months a year. The chief goods exported from the L. basin are timber, furs, and gold; imported are industrial products and food. The prin. ports are Oestrovo and Yakutsk.

**Lena**, see POLA DE LENA.

**Le Nain, Antoine, Louis, and Mathieu**, see NAIN, LE.

**Lenard, Philipp E. A. von** (1862-1947), Ger. physicist; *b.* Pozsony, Hungary; educ. at Budapest, Vienna, Berlin, and Heidelberg; prof. at Heidelberg, 1896-1898, Kiel, 1898-1907, and Heidelberg again, 1907-31. His investigation of the cathode rays showed that the electrons of which they were composed could pass right through atoms, and hence that much of the space within atoms was empty. For this work he received a Nobel prize in 1905. He demonstrated that in the photo-electric effect electrons are released by the action of light, carried out fundamental work on phosphorescence, and made the first measurements of ionization potentials.

**Lenau, Nikolaus** (1802-50), pen-name of Nikolaus Niemsch von Strehlenau, Austrian poet, *b.* Osatad, Hungary. His poetry is pervaded by a deep seriousness, often bordering on despair, which has earned him the title of the 'German Byron.' Some of his most beautiful poems are contained in the *Schilffieder*, 1832. He wrote also a longer poem, *Faust*, 1836, which dramatises his own conflict between faith and knowledge, and an epic, *Die Abigensier*, 1842. In 1844 he became insane. L. is one of the lyric poets most frequently set to music. His collected works were pub. by A. Grün in 1855. See lives by A. X. Schurz (his brother-in-law), 1855, enlarged by E. Castle, 1913, and L. Renaud, 1904; see also M. Schaefferberg, *Lenaus Dichtwerk als Spiegel der Zeit*, 1935, and H. Vogel-sang, *Lenaus Lebenstragödie*, 1952.

**Lenbach, Franz** (1836-1904), chief Ger. portrait painter of the 19th cent., *b.* Schrobenuhausen, Upper Bavaria. He became a pupil of Piloty, whom he accompanied to Italy, where he studied the old masters. On his return to Munich he soon recognised that his chief strength lay in portraiture, and at Rome, where he spent many of his winters, he soon became the centre of a brilliant artistic circle. His best-known portraits are those of Bismarck, Moltke, Gladstone, Wagner, Strauss, and Liszt. See monograph by A. Rosenberg (5th ed.), 1911.

**Lencas**, widespread Amer. Indian people in Honduras and Nicaragua. The

Aztecs looked down on the L. and called them aliens or barbarians, but they were more or less civilised, as proved by ruins and objects found in the graves in dists. where they once dwelt. There are no temples left, or inscriptions on anything, but monoliths 6 or 7 ft high, stone figures of animals, idols, gold ornaments, and earthenware pots have been found in large quantities. See D. Stom, 'The Lenca,' in J. H. Steward's *Handbook of South American Indians* (vol. iv), 1948.

**L'Enclos, Anne, or Ninon de** (1616-1705), Fr. courtesan, b. Paris, famous for her beauty and intelligence. She had a succession of lovers, including Saint-Evremond, Sévigné, La Rochefoucauld, and Condé. Her wit and intellectual abilities soon made her the leader of society in Paris and the friend of Mme de Maintenon, Mme de la Fayette, and Voltaire. See Helen K. Hayes, *The Real Ninon de l'Enclos*, 1908, and C. Austin, *The Immortal Ninon*, 1929.

**Lend-Lease.** The Lend-Lease Act, 1941, which constituted an innovation of supreme importance in the hist. of economic policy, was passed by the U.S. Congress in Mar. 1941 and enacted that the President might authorise the manuf. or procurement of 'any defence article for the gov. of any country whose defence the President deemed vital to the defence of the United States'; and that he might permit competent authorities to 'sell, transfer title to, exchange, lease, lend, or otherwise dispose of to any such government any defence article,' etc. 'Defence article' is defined as including not only weapons, munitions, and ships, but 'any agricultural, industrial, or other commodity or article for defence.' Under this Act not only the Brit. Commonwealth but all the allied nations, and also fighting France, the S. Amer. neutrals, Turkey, Egypt, Iraq, and Persia, were declared eligible for L.-L. Master L.-L. agreements were negotiated with numerous countries. Reciprocal L.-L. agreements were also signed with a number of countries, including Great Britain, providing that each country receiving L.-L. aid from the U.S.A. should furnish in return such goods and services as it could supply and as the U.S. Gov. required for its own war effort, without any consideration being given to the maintenance of a balance between the values of goods and services received and given. The office of L.-L. Administration was estab. in Oct. 1941, to list and arrange the procurement of supplies under the Act.

L.-L. supplies were not subject to export licence and were available only to govts. and not to private individuals. The office was therefore in constant contact with foreign govts. and had its own missions or representatives in sev. of the countries concerned. Thus the Harriman mission in London represented the office and the War Shipping Administration.

**United Kingdom. Lend-Lease.** The U.K. also made L.-L. payments to the other countries of the allied nations. Up

to the middle of 1943 the U.K. had made such payments to a total of £2,250,000,000 in excess of the sums received from the allied nations. Figures issued by the Ministry of Production in Sept. 1944 of the Brit. aid for the invasion of France reflect the extent of reverse L.-L. to U.S. forces: thus 5000 special trains were lent to the Amer. forces for the invasion; the military equipment provided for the Amer. forces included 14,000,000 rounds of small arms ammunition. Before the invasion started the U.K. had become an armed camp for the Americans, and by 30 June 1944 some £49,184,000 had been spent by the War Office on new buildings for the Amer. forces.

L.-L. was officially terminated on 20 Aug. 1945. As at July 1945 the money value of L.-L. material totalled nearly \$42,000,000,000, while the money value placed on reverse L.-L. (i.e. goods and services supplied to U.S. forces abroad) was estimated at \$5,500,000,000. In the twenty-third report to Congress on L.-L., Truman disclosed that the Brit. Empire received 65 per cent of all L.-L. aid to allied countries. The figure for the Brit. Commonwealth was over £7,875,000,000. Russia received 23 per cent—over £2,800,000,000.

**Lendinara, It.** tn in Veneto (q.v.), 10 m. W. of Rovigo (q.v.). Pop. 16,500.

**Lenfant, Jacques** (1661-1728), Fr. minister and writer, b. Baroches. He was ordained to the Protestant Church in Heidelberg about 1684. Among many writings, chiefly theological, he ed. and annotated the N.T. in French, in collaboration with Beausobre.

**Lengeh, or Bandar Lengeh,** seaport tn of Persia in the dist. of Lar on the Persian Gulf. There is a harbour with anchorage for small ships at comparatively short distance from land. Pop. 9000.

**Length, Measure of,** see METROLOGY.

**Lenin** (real name Ul'yanov), Vladimir Il'ich (1870-1924), Russian politician of half-Ger. descent, founder and leader of the Communist party and the Communist International, founder of the Soviet state and first head of the Soviet Gov. He was b. Simbirsk, son of a senior civil servant (inspector of schools). Like his brothers and sisters L., even as a schoolboy, was greatly influenced by the revolutionary and socialist Populist (see POPULISM) literature of the 1860's and 70's; his older brother was executed in 1887 for an attempt on the life of Alexander III. Expelled from Kazan Univ. for participation in student riots, L. graduated in law (with a gold medal) at St Petersburg Univ. as an external student. In 1887-93 he belonged to the first Marxist circles in Kazan' and Samara; in 1893 he moved to St Petersburg, joined the main Marxist circle there, and became its leader in theoretical attacks on Populism and Legal Marxism (q.v.). In 1895 he and Martov (q.v.) formed the St Petersburg Union for the Struggle for the Liberation of the Working Class, with the aim of replacing theoretical propaganda among students by practical

agitation among workers. Arrested in the same year, L. was banished in 1897 to S. Siberia, where he continued his journalistic and underground activities. Released in 1900, he emigrated to W. Europe. Meanwhile the Russian Social Democratic Labour party (q.v.) had been formed in 1898, combining various trends, orthodox Marxist and reformist, conspiratorial and trade-unionist. L.'s own mind was already concentrated on the problems of seizing and keeping power. He set out to capture the Social Democratic party through an unstated organisation *Iskra* (q.v.), which packed the second party congress in 1903 but



LENIN IN 1918

itself split, L.'s followers forming the Bolshevik faction. L. soon lost control over the party and even over the Bolshevik faction, and in 1905 was expelled from the purely Bolshevik Central Committee (headed by Krasin, q.v.) for disorganising party work. He had already formed a rival 'stone-hard' Bolshevik subfaction (Bogdanov, Lunacharskiy, Litvinov, Rykov, qq.v.) and assailed the Central Committee until they were prepared to make peace. Having returned to Russia in Oct. 1905, L., together with Bogdanov and Krasin, led the Bolshevik faction through the final stages of the revolution of 1905-7 (q.v.), then again emigrated. The following years were spent in petty *émigré* quarrels and intrigues in which L. again lost control over the ostensibly reunited Social Democratic party and over his own faction, having broken with Bogdanovists and with the 'party-minded' Bolsheviks Rykov and Sokolnikov (q.v.); his chief lieutenants were now Zinov'ev and Kamenev (qq.v.). In 1912 a gathering of a dozen hand-picked Leninists in Prague elected a 'Central Committee of the Social Democratic party' and in advance 'expelled' from the party all those who would not obey this Central Committee. After this break with everyone else L. concentrated on guiding the attempts of his followers to

extend their influence in the advancing labour movement in Russia by gaining control in trade unions, co-operatives, educational associations, etc., as well as through the daily newspaper *Pravda* (q.v.) and the Bolshevik members of the Duma (q.v.). During the First World War L. and Zinov'ev lived in Switzerland, propagating a defeatist attitude for Russian workers and organising international anti-war conferences of Left-wing Social Democrats. After the February revolution (q.v.) in 1917 L. returned to Russia through Germany, and from this time until the assassination of the Ger. ambas. in Russia in 1918 the Bolsheviks received financial aid from the Ger. Gov., of which L. appears to have known. From the time of his return L. planned an armed uprising against the Provisional Gov. (q.v.) and the seizure of power. This alienated Kamenev and Zinov'ev, but attracted L.'s old bitter opponent Trotsky (q.v.), who became his main partner in organising and conducting the October revolution (q.v.) and in establishing the Soviet Gov. (see SOVIET). L. became chairman of the Council of People's Commissars (Prime Minister) and held this post until his death. The first actions of his gov. were nationalisation of the land, the estab. of the Cheka (q.v.) and suppression of non-Socialist parties, the dispersal of the Constituent Assembly (q.v.), and the conclusion of the Brest-Litovsk peace treaty (q.v.). Then the civil war (q.v.) ensued with the policy of War Communism (q.v.), followed by the period of the New Economic Policy (q.v.). After the Brest-Litovsk treaty L.'s closest collaborators were Sverdlov and Stalin (qq.v.), and from 1919 he was assisted in leading the party and the gov. by the Politburo (q.v.), which included most of the prominent Bolshevik leaders. Opposition to his policies arose almost constantly in the party, the most important being that of the Left Communists (see BUKHARIN and LEFT OPPOSITION) and the Workers' Opposition (q.v.), until inner-party oppositions were formally condemned at the packed tenth party congress in 1921 (see COMMUNIST PARTY OF SOVIET UNION). L. was wounded in an attempt on his life by Left Socialist Revolutionaries (see SOCIALIST REVOLUTIONARIES) in 1918, and from 1922 suffered from a brain disease which finally caused his death. His mummy is displayed in the mausoleum on the Red Square in Moscow. L. had a powerful charismatic quality of leadership. He had a genius for organisation and tactics, intrigue and demagoguery, and his writings on these subjects (e.g. *What is to be Done?*, 1902, and *The Infantile Disease of 'Leftism' in Communism*, 1918) are among the classics of political theory. But his philosophical efforts (*Materialism and Empirio-criticism*, 1909) are miserable, and there is little that is original in his economic writings (*Imperialism as the Highest Stage of Capitalism*, written 1916). He was a realist whose attitude to Marxist theory was highly utilitarian and

opportunist: he displayed great reverence for the works of Marx and Engels while in fact treating them as a source of suitable quotations. Modest in private life, kind and considerate in personal relationships, he had no moral scruples in politics. The 5th ed. of *L.'s Works* in Russian is being prepared in Moscow in 50 vols. For Eng. trans. see *Selected Works* in 12 vols., London, 1936-8. Literature about L. is vast. See memoirs by his wife Krupskaya, 1932, and Gor'kiy, 1932, and studies by M. A. Aldanov, 1922; R. Fueleop-Miller, 1927; C. Hollis, 1938; C. Hill, 1947; B. D. Wolfe, 1948; D. Shub, 1951.

**Leninabad:** 1. Oblast (prov.) of the Tadzhik S.S.R. Pop. 495,000.

2. Cap. of the above; fruit-preserving and canning are carried on, and there are leather, silk, and brick works. Pop. 60,000.

**Leninakan** (until 1924 **Aleksandropol'**), tn in Armenia, 55 m. NW. of Yerevan. It is an important industrial centre (since late 19th cent.)—textile, metal-working (bicycles), and food industries. Pop. (1956) 103,000 (c. 1914, 49,000; 1926, 42,000). L. was founded by the Russians in 1834 on the site of an ancient fortress.

**Leningrad:** 1. Oblast in NW. Russia, adjacent to the Gulf of Finland and Lakes Ladoga and Onega. It is a region of half-forested lowland, with a maritime climate. There are bauxite, oil-shale, and peat deposits. Area 32,800 sq. m.; pop. (without L. city) over 1,500,000, mostly Russians, also Finns, Estonians, Karelians, and small Finnish peoples. The economy of the oblast is largely aimed at supplying L. city. There is peat and oil-shale extraction, timber, aluminium, and building materials are produced, and there are food and light industries; vegetables, potatoes, and coarse grain are grown, and the area also has dairy farming and fishing. The prin. tns are L., Vyborg, Volkhov, and Gatchina. The area (except W. of the Karelian Isthmus) belonged to Novgorod. was sometimes partly held by Swedes in the 16th-17th cents., and finally became Russian in 1721. The Karelian Isthmus, with Vyborg, belonged to Finland, 1809-1940 and 1941-4. Most of the oblast was occupied by Germans during the Second World War and witnessed much bitter fighting.

2. Cap. of the above (formerly **St Petersburg** until 1914, then **Petrograd** until 1924), second largest city of the U.S.S.R. and second only to Moscow as an economic and cultural centre. It is directly subordinated to the gov. of the Russian Federal Rep. It is situated at the head of the Gulf of Finland, on both banks of the Neva R. Pop. 2,814,000 (with suburbs 3,176,000), having risen steadily since 1754, when it was 150,000. L. has large engineering works (ship-building, precision instruments), and there are electrical, chemical, woodworking, food, and light industries. Electricity is supplied to the city from hydro-electric

stations of the L. oblast; coal comes from Vorkuta (q.v.) and Poland, and gas by pipeline from Estonia (a new pipeline to convey natural gas from Stavropol' (q.v.) is under construction). Twelve railway lines radiate from L. Its sea port, although frozen from Jan. to April, is one of the largest in the world, and its riv. port is one of the most important in the U.S.S.R. The latter stands at the end of 2 artificial waterways: the Volga-Baltic (see **MARIINSKY WATERWAY**) and the White Sea-Baltic Canal (q.v.).



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**LENINGRAD: THE GRIBOYEDOV CANAL**  
On the left is the Kazan' cathedral.

From its 23 higher educational estab. with 12,000 students in 1910, L. possessed 47 with 100,000 students in 1953, among them the univ. founded in 1804. There are 40 museums, including the famous Hermitage Museum, founded by Catherine the Great, with its magnificent collection of European paintings, and the Russian Museum of native art, founded in 1895. The 1700 libraries include the Salykov-Shechedrin Public Library (founded 1795), with 10 million vols., and the Academy of Sciences Library, with 8 million vols. Among the 16 theatres are the opera and ballet theatre, founded in 1783, and the drama theatre, founded in 1832.

L. is one of the best-planned and most beautiful cities in the world. The prin. part of the city is on the l. b. of the Neva. In the centre stands the Admiralty, surrounded by the beautiful Alexander Garden. From this central point radiate 3 long boulevards, rendered imposing by

their width. Eastwards runs the Nevsky Prospekt, the city's central thoroughfare, while S. and SE. respectively stretch the Voznesensky Prospekt and the Gorokhovaya Ulitsa. L.'s oldest building is the Peter and Paul fortress founded in 1703. The buildings of the earlier part of the 18th cent. are baroque in style, among them the Alexander Nevskiy monastery (1710), the cathedral of SS. Peter and Paul (1733), the univ. (1742), the Winter Palace (1762), the Smol'nyy convent (1764); those of the late 18th and early 19th cents. are in the neo-classical style, and among these are the Academy of Arts (1772), the Marble Palace (1785), the Taurida Palace (1788), Michael Castle (1800), the cathedral of the Theotokos of Kazan' (1811), the rebuilt Admiralty (1823), the Exchange (1816), the Michael Palace (1825—now the Russian museum), the ensembles of the Palace Square (1829), the Senate Square (1834), and the drama theatre (1832), and St Isaak Cathedral (1858). The second half of the 19th and the 20th cents. have added little to the beauty and magnificence of L., though the stadium (1950) and the underground (1956) are notable.

L. was founded by Peter the Great in 1703, and from 1712 to 1918 was the cap. of Russia, symbolising the imperial epoch of its hist. Since 1918 it has retained unofficial status as the second cap. of Soviet Russia. From its foundation it was the main seaport of the country, replacing Archangel. From the second half of the 18th cent. it was also the industrial centre, first of heavy industry (shipbuilding and engineering), and later of the textile industry. From its foundation St Petersburg was also a centre of higher education and learning, the naval academy being founded in 1715, the engineering school in 1719, the artillery school in 1721, and the Academy of Sciences in 1725 (this last was transferred to Moscow in 1934). In the 19th cent. L. was the main centre of the radical and revolutionary movements in Russia, and one of the main centres of the labour movement and of Social Democracy. The Bolsheviks were strong in St Petersburg from the time of the revolution of 1905 (q.v.), and it was one of their strongholds during the period of the 'dictatorship of the proletariat' (q.v.), though the L. party organisation, led by Zinov'ev, was in the mid 1920's in opposition to the central leadership. The assassination of Kirov (q.v.) in L. in 1934 initiated the wave of terror which culminated in the great purge (q.v.). During the Second World War L. was besieged for 2 years and earned the name of 'Hero City' (see next article).

**Leningrad, Siege of (1941-3).** From 21 Aug. 1941, in the Second World War, L. was closely besieged by the Germans, and for 16 months overland communications with the rest of Russia were cut. The siege was begun by von Leeb with an army of 300,000 riflemen, a div. of motorised infantry, 1000 tanks, and 1000 first-line aircraft. For months L. lay under direct threat of capture. Probably

over 200,000 Germans, Finns, and soldiers of other satellite nations d. in the approaches to the city; while in L. itself the Russian death-roll from gunfire, hunger, and exposure was very high. The active defence policy of its garrison saved L. Its aircraft bombed the Ger. positions and went far out to attack the Luftwaffe's bases in Finland and Estonia. Its ground forces were always attacking the Ger. defence system; snipers stealing through the bracken on outlying hills or on skis over the snow and ice took heavy toll. When navigation was free the Baltic fleet harassed the supply routes from the Hanseatic ports to the Ger. force in Finland; and when the fleet was icebound its guns were lent for the suppression of the Ger. siege artillery batteries. In Dec. 1941 transport difficulties and Ger. air-raids brought L. to the verge of famine; but this was remedied when the great ice highway across Lake Ladoga was built and Douglas planes flew provisions into the city. Once the Lake Ladoga road was open and the Russians had advanced in the Lake Ilmen, Volkhov, and Kalinin sectors, the situation at L. improved, though the suburbs sustained widespread damage from siege guns in the W. and SW., some of these being suppressed by the Russian advance towards Peterhof. Famous buildings did not suffer very greatly, though Pushkin's house on the Moika was wrecked early in the war. The piercing of the blockade was at length effected by a combined operation under Govorov, the victor of Mozhaisk and commander of the L. garrison from early in 1942, and Meretzkov, aided by men of the fleet fighting on the ice of Lake Ladoga and the guns of warships and coastal batteries. While the issue was still in some doubt the pressure of heavy Russian tanks, which had been brought across the Neva by pontoons, and deadly low-flying Stormovik planes flung the enemy back to the edge of the forest; while on the Volkhov Meretzkov forced a passage to Lake Ladoga and split the Ger. belt asunder. From the E. yet another Russian force delivered a powerful series of frontal attacks. The junction of the 2 armies of Govorov and Meretzkov on 18 Jan. 1943, after a 7-day battle, estab. a corridor 10 m. broad and so relieved the city. See also EASTERN FRONT, OR RUSSO-GERMAN CAMPAIGN, IN SECOND WORLD WAR.

**Leninogorsk, formerly Ridder,** a tn in the E. Kazakhstan oblast (prov.) of the Kazakh S.S.R. of the Soviet Union. It is one of the main zinc and lead producers in the U.S.S.R. Pop. 120,000.

**Leninsk-Kuznetskiy (until 1925 Kol'chugino),** tn in the Kemerovo oblast of S. Siberia, 47 m. S. of Kemerovo. It is one of the main centres of coal-mining in the Kuznetsk basin (q.v.). Pop. (1956) 119,000 (1917, 20,000; 1926, 20,000; 1939, 82,000). It was founded in 1864 as a coal-mining settlement.

**Lenkoran',** tn in Soviet Azerbaijan, on the Caspian Sea, 160 m. S. of Baku. It

is the centre of a subtropical area growing rice, citrus fruits, and tea. It was cap. of the Talysh Khanate under Persia in the 18th cent., becoming Russian in 1813. Pop. (1956) 31,000, mostly Talysh (q.v.).

**Lennel**, see **COLDSTREAM**.

**Lennep, Jacob van** (1802-68), Dutch poet and novelist, *b.* Amsterdam. He took his doctorate in law at the univ. of Leyden in 1824 and started legal practice in Amsterdam in 1829, becoming procurator general. He was a member of the Dutch Parliament, 1853-6. His first essay in literature was a trans. of Byron's *Bride of Abydos* in 1826 and of the *Siege of Corinth* in 1831. A greater influence was, however, that of Sir Walter Scott, and he is now remembered chiefly for his series of historical novels which displayed excellent narrative power. They include *De Plegzoon, een verhaal*, 1835 (Eng. trans., *The Adopted Son*, New York, 1847); *De Roos van Dekama*, 1836 (Eng. trans., 1847); *Jacoba's Weeklacht op het huis te Teylingen*, 1839 (Eng. trans., 1840); *Ferdinand Huyck*, 1840 (Eng. trans., *The Count of Talavera*, 1880). Van L.'s dramatic works were pub. in 3 vols. (Amsterdam), 1852, and his poetical works in 11 vols. (Rotterdam), 1859-62. See life by N. Beets, 1906, and M. F. van Lennep, 1909; also M. E. Kluit, *Jacob van Lennep*, 1942.

**Lennox, Charles Henry Gordon**, see **RICHMOND AND GORDON**, 6th DUKE OF.

**Lennox, Charlotte**, *nee Ramsay* (1720-1804), Brit. writer, *b.* New York. She came to London in 1735, and after a brief period on the stage earned her living by writing. Her chief books are *Life of Harriet Stuart*, 1751, *The Female Quixote*, 1752, and *Shakspear Illustrated: or The Novels and Histories on which the Plays are founded*, 1753-4.

**Lennox**, anct Scottish ter. comprising the anct sheriffdom of Dumbarton and large portions of the shires of Stirling, Perth, and Renfrew. The earldom of L. was first conferred on Alwin c. 1175. The title passed in 1473 to his descendant, Sir John Stewart, Lord Darnley. Matthew, second earl of this Stewart line, fell on Flodden Field, and Matthew, fourth earl, married Margaret Douglas, daughter and heir of the Earl of Angus and Margaret Tudor, sister of Henry VIII; Matthew's eldest son, Lord Henry Darnley, married Mary Queen of Scots. After the murder of Darnley (1571), Matthew worked for the abdication of Mary, and in 1570, his grandson being recognised as James VI of Scotland, he was appointed regent. On his death (1571) the title passed to James, who conferred it on his uncle, Charles, the younger brother of Darnley, who left an only daughter, Lady Arabella Stewart. In 1580 James conferred the title on his cousin, Esmé Stewart, grandson of the third earl, and in the following year Esmé was created Duke of L. He was succeeded by his son Ludovic, who was created Earl of Richmond (1613), and Earl of Newcastle and Duke of Richmond (1623) in the Eng. peerage. On his dying without male issue (1624) his titles passed to his

brother Esmé. On the death of the sixth duke, Charles, the L. dukedom devolved upon Charles II, who bestowed it on his illegitimate son, Charles Lennox (by the Duchess of Portsmouth), who sold the lands to the Marquess of Montrose in 1702.

**Lennox-Boyd, Alan Tindal** (1904- ), Brit. politician, educ. at Sherborne and Christ Church, Oxford. He has been a Conservative M.P. since 1931. He held junior offices in Chamberlain's gov., and subsequently in Churchill's coalition gov., becoming minister of aircraft production, 1943-5. He was minister of state for colonial affairs, 1951-2; minister of transport, 1952-4; and since 1954 has been secretary of state for colonial affairs, in which capacity he has had to deal with especially difficult problems in Cyprus, Kenya, and Singapore, and has been closely concerned in the negotiations leading to dominion status for the Gold Coast (Ghana) and Malaya.

**Lennox Hills**, range of hills in Scotland which includes the Campsie Fells, Strath-blane Hills, and Kilpatrick Hills, situated between Dumbarton and Stirling. They rise to 1894 ft at Earl's Seat.

**Lennox town**, vil. of Stirlingshire, Scotland, 10 m. N. of Glasgow, chiefly residential. Nails are manuf. Pop. 4966.

**Leno, Dan** (1861-1904), stage name of George Galvin, comedian, *b.* Somers Town, London. His parents were travelling entertainers, known as Mr and Mrs Wilde, and as a child he was trained as an acrobat and dancer. With his brother he won the world championship in clog-dancing at Leeds in 1880, and after appearing in pantomime at the Oxford and Surrey Theatres, he was engaged for Drury Lane by Sir Augustus Harris. In 1900 he was transferred to the Pavilion Music Hall, and in 1901 performed before the king at Sandringham. He was the most famous comedian and pantomime performer of his day. See J. H. Wood, *Dan Leno*, 1905.

**Lenocinium** is the term used in Scots divorce law to indicate connivance at or consent to adultery of one spouse by the other. A pursuer is barred from obtaining a decree if he or she has been guilty of connivance at the adultery complained of.

**Lenormand, Henri René** (1882-1951), Fr. dramatist, *b.* Paris, son of the composer, René L. His first work was *Les Possédés*, 1909, performed at the Théâtre des Arts, and the next *Poussière*, 1914, followed by *Les Râles* (Eng. trans., *Failures*, 1923) and *Le Temps est un songe* (Eng. trans., *Time is a Dream*, 1923), both performed at the Théâtre des Arts. His work is profoundly influenced by Freud, and his plays show men driven by their subconscious instincts. His later plays are *Le Simoun*, 1920; *Le Mangeur de rêves*, 1922 (a modern reproduction of *Edipus Rex*); *L'Homme et ses fantômes*, 1924; *Les Trois Chambres*, 1931; *Crepuscule du théâtre*, 1935. See H. Daniel-Rops, *Sur le théâtre de H.-R. Lenormand*, 1926, and P. Blanchard, *Le Théâtre de H. R. Lenormand*, 1947.

**Lenormant, François** (1837-83), Fr.

archaeologist, b. Paris. He won the prize in numismatics at the Académie des Inscriptions with his *Classification des monnaies des Lagides*, 1856, and was appointed sub-librarian, 1862. After travelling in Greece he accepted the professorship of archaeology at the Bibliothèque Nationale, 1874-83. His chief works are *Les Antiquités de la Troade*, 1876, and *Les Origines de l'histoire d'après la Bible*, 1880-4. From cuneiform inscriptions he deduced the existence of a non-Semitic tongue which was later known as Accadian. Other works: *Manuel d'histoire ancienne de l'ouest*, 1868-9, 1881, *Lettres assyriologiques*, 1871-9, *Les Premières Civilisations*, 1874, *Les Sciences occultes en Asie*, 1874-5, *La Monnaie dans l'antiquité*, 1878-9, and *Monnaies et médailles*, 1883.

**Le Nôtre, André** (1613-1700), Fr. landscape gardener. Louis XIV. who heard of his skill, gave him a commission to lay out the gardens of Versailles, the Trianon, the terrace of St Germain, and the gardens of Fontainebleau, St Cloud, and Chantilly. He was also the designer of St James's Park and Kensington Gardens in England, and of Greenwich Park. In addition to these he visited Rome and laid out the gardens of the Quirinal and Vatican, see J. Guiffrey, *André le Nôtre*, 1912.

**Lens, Fr.** tn in the dept of Pas-de-Calais. It was the scene of a victory of Condé (q.v.) in 1648 during the Thirty Years War, and was an important theatre of operations during the First World War, particularly in the battle of Arras (q.v.). In 1918 it was in ruins, but was rebuilt, and was again damaged in the Second World War. It is the centre of a rich coal-mining valley, and there are also sugar and metallurgical industries. Pop. 34,100.

**Lens, in optics**, a portion of a refracting medium bounded by 2 curved surfaces, or by 1 plane surface and 1 curved surface. L.s. are usually made of glass, their surfaces being usually portions of spheres, and for most practical purposes having a small thickness in proportion to the radius of curvature. They may be divided into 2 classes, convex or converging L.s. and concave or diverging L.s. The former are thicker in the centre than at the edges, and the latter thinnest at the centre. Light is refracted (i.e. changes its direction) when it passes from air to glass, or from glass to air, and L.s. are important because the refraction at their 2 surfaces can be made to alter the directions of the incident light rays in such a way that whole groups of rays pass onwards towards a single point, or in directions away from a single point. If, for example, rays from a point on a distant object fall on the convex L. of a camera, they are so refracted that all reach one point on the photographic plate or film placed behind the L. and at a suitable distance from it, and they are said to form an *image* of the object point. From each point on the object a group of rays is in this way focused on the plate at an appropriate point, so that the totality

of rays passing through the L. produces a picture or image of the object upon the plate. In this case the rays travel to the image, and the image is said to be a *real* one. Similarly the rays from a point on an object fall on the L. of a pair of spectacles, and are refracted in such a way that they pass to the eye as though they had come from a point other than that where they originated; that is, they merely appear to come from an image point, and the image is said to be *virtual*. Whether the image produced by a convex L. is real or virtual depends upon the distance of the object and such characteristics of the L. as the curvature of its faces and the nature of the glass of which it is made; concave L.s. however, produce only virtual images of real objects. The sizes and positions of the images formed by L.s. depend upon the sizes and positions of the objects, and upon various characteristics of the L.s. See also DIOPTRIC. See A. Cox, *Photographic Optics*, 1943, and B. K. Johnson, *Practical Optics*, 1945.

**Lens, in botany**, genus of Mediterranean climbing annuals, family Leguminosae, of which *L. esculenta* is the Lentil (q.v.).

**Lent** (O.E. *lenten*, *lengen*, spring; M.E. *leinten*, *lenten*, *lente*), in the Christian Church the period of fasting before Easter. In the time of Irenaeus a rigid fast was observed by some Christians for 40 hours before Easter morning. In Alexandria, during the 3rd cent., Christians fasted throughout Holy Week, and by the 4th cent. the period had extended to about 40 days. In the 8th or 9th cent. it was determined that the fast should begin on Ash Wednesday, between which and Easter Sunday are 40 days, excluding Sundays, on which the fast is not observed. Hence in Latin the Sundays in L. are called in *Quadragesima*, i.e. within the Forty Days, whence Fr. *Carême*, etc. The fourth Sunday in L., Mid-lent Sunday, has various other names, as Refreshment Sunday (from the Gospel, the story of the feeding of the 5000) or *Laelare* Sunday (from the opening word of the introit); it provided a break in the penitential season, and rose-pink vestments are worn instead of purple. From the Epistle, referring to Jerusalem above, the mother of us all, it became called Mothering Sunday, when mothers are paid visits, given gifts of flowers, etc. In days past, young servant maids were allowed a holiday to visit their mothers, and usually took with them a rich *stannel* cake. The fifth Sunday is Passion Sunday, beginning Passiontide which ends with Holy Saturday, the day before Easter. The sixth Sunday is Palm Sunday and begins Holy Week, commemorating the last days of the earthly life of Christ.

**Lenthall, William** (1591-1662), politician, b. Henley-on-Thames, son of an Oxfordshire landowner, and educ. at Alban Hall, Oxford. Called to the Bar in 1616, he entered the Short Parliament as member for Woodstock in 1640, and in the following year the king made him Speaker, a position he retained until 1653. His behaviour when Charles I. ordered



him to disclose the whereabouts of the Five Members (q.v.) he wanted to arrest is historic. He became master of the Rolls in 1643, and was Speaker again in 1659 when the Rump was recalled. Though favouring the Restoration he was at first exempted from pardon in 1660.

**Lentils**, seeds of an ann. branching plant with pale blue flowers (*Lens esculenta*). Their shape has given the name to the glass lens. There are numerous varieties and all are of high food value. The plant will grow in warm parts of Britain, but is rarely cultivated. In all S. parts of Europe, and in Egypt and India, the crop is an important one.

**Lentini**, tn in Sicily (q.v.), near Lake L., 22 m. NW. of Syracuse (q.v.). It has pottery manufs. and a large agric. market. Pop. 29,300. See LEONTINI.

**Leontius**, patrician family of the gens Cornelia, of which the most prominent members were: (1) *P. Cornelius L. Sura*. Praetor in 75 BC and consul 4 years later, he was expelled from the Senate in 71, with 63 others, because of his infamous life. This humiliation caused him to ally himself with Catiline (q.v.). In order to gain power and recover his place in the Senate, L. stood a second time for the praetorship, which he assumed in 63. When Catiline left for Etruria L. was left as leader of the home conspirators, and his irresolution probably saved the city from being burned. L. was deposed from the praetorship, and was strangled in the Capitoline prison (5 Dec.). (2) *P. Cornelius L. Spithuer* was successively curule aedile, praetor, and consul over the period 63-57 BC. In his consulship he moved for the immediate recall of Cicero, and afterwards received Cilicia as his prov. On the outbreak of the civil war in 49 BC he joined the Pompeian party, and was executed after Pharsalus (48 BC).

**Lenz, Jakob Michael Reinhold** (1751-1792), Ger. poet, b. Sessweg, Livonia, is a typical representative of the *Sturm und Drang* period. His earliest efforts at composition were sacred songs in the style of Klopstock. After studying theology at Königsberg, he migrated to Strassburg, joined the literary coterie of Salzmann (1749-1821), and gained the friendship of Goethe (q.v.). His passionate lyrics, *Die Liebe auf dem Lande*, were inspired by Friederike Brion, whom Goethe also loved. Insanity overtook him in 1777. His romantic comedies *Der Hofmeister*, 1774, and *Die Soldaten*, 1776, etc., show a marked deficiency in restraint. See H. Kindermann, *Lenz und die deutsche Romantik*, 1925.

**Lenz's Law**, see INDUCTION, ELECTRO-MAGNETIC.

**Leo**, name of 13 popes, of whom the following are most outstanding:

**Leo I**, St (440-61), styled *the Great*. B. probably in Tuscany, he was elected to succeed St Sixtus III. He combated the Pelagians, Manicheans, Priscillianists, Nestorians, and Eutychians. It was against these last that he addressed to the patriarch of Constantinople a celebrated dogmatic letter, known as the Tome of St

L. in which he defined the doctrine of the hypostatic union and which was accepted by the Council of Chalcedon (451) as the teaching of the Church. In 452 L. turned Attila from the gates of Rome, and 3 years later prevented the sack of Rome's anct basilicas by the Vandals under Genseric. His feast is on 11 April, and he was declared a Doctor of the Church by Benedict XIV in 1754.

**Leo II**, St (681-3), b. in Sicily, successor of St Agatho. The prin. event of his pontificate was the condemnation of Pope Honorius I (625-38) for having failed to condemn Monothelitism.

**Leo III**, St (795-816), b. Rome, successor of Adrian I. In 799, when public order and even his own life were threatened by the Rom. factions, he invoked the aid of Charlemagne, who restored peace to the city and was crowned emperor of the W. by L. in St Peter's (800). L.'s feast is on 12 June.

**Leo IV**, St (847-55), b. Rome, successor of Sergius II. Before his election he was a Benedictine monk of San Martino. During his pontificate he built the Leonine Wall to enclose the Vatican, inspired a great victory over the Saracens at Ostia, and stood godfather to the future Alfred the Great when the latter was confirmed in Rome (853).

**Leo IX**, St (1049-54), b. in Alsace, 1002; Bishop of Toul, 1026; succeeded Damasus II. With the aid of Hildebrand (afterwards St Gregory VII) he began to reform the Rom. Curia, combated simony and other abuses, condemned Berengarius, and endeavoured to prevent the schism between E. and W. L. was a friend of Edward the Confessor, and was visited by Macbeth. Taken prisoner by the Normans at Benevento in 1053, he d. soon after his release.

**Leo X** (1513-21), b. Florence, 1475, son of Lorenzo de' Medici the Magnificent, and successor of Julius II. The early years of his pontificate were occupied in negotiations with the Empire, Spain, and England for an alliance against Venice and France, with the ultimate aim of a crusade against the Turks. His immoderate grant of indulgences was one of the abuses which helped to precipitate the Reformation. His diplomatic failures were largely due to his policy, on the one hand of advancing the temporal claims of the papacy, and on the other to his efforts for the aggrandisement of his family.

**Leo XII** (1823-9), b. near Spoleto, 1760, successor of Pius VII. Before his election L. had been secretary to Pius VI (1775-99); cardinal priest, 1816; cardinal vicar, 1820. It was not expected that L.'s pontificate would be of long duration; but within 6 years he proved himself a reactionary, and the effects of his policy in the papal states became manifest in later years.

**Leo XIII** (1878-1903), b. Carpineto, 1810, successor of Pius IX. He was ordained priest in 1837; consecrated bishop in 1843; Archbishop of Perugia, 1846; cardinal, 1853. His pontificate is a landmark in European hist.; for he

enforced a stricter theological training in accordance with the teaching of St Thomas Aquinas, opened the Vatican archives to scholars of all nations, and encouraged the study of eccles. hist. His encyclical, *Iterum Novarum*, 1891, dealing with the condition of the working classes under industrialism, advocated a wider diffusion of private property. His commission to inquire into the validity of Anglican orders led to their definite and final condemnation in 1896.

See also POPES, LIST OF THE.

**Leo I, Flavius** (c. 400-74), Byzantine emperor, b. Thrace, gained the throne on the death of Marcianus in 457 through the influence of Aspar, master of the troops (whom L. later put to death). He adopted stern measures against the Eutychians, and defeated the Huns in Dacia. While on an expedition to recover part of Africa, however, his fleet was destroyed by the Vandals. Towards the end of his reign he suppressed a rising of Goths. He was succeeded by his 4-year-old grandson, Leo II, who d. after a nominal reign of 10 months.

**Leo III, the Isaurian** (c. 680-740), Byzantine emperor. L. was the founder of the Isaurian dynasty, b. in the Syrian prov. of Commagene. In 717, refusing to acknowledge the usurper Theodosius III, he was elected emperor by the army, and during the first year of his reign defeated the Saracens, who had laid siege to Constantinople. He later inflicted a decisive defeat on them at Acorion (740). L. did much to improve administrative efficiency, reformed the army, and helped the peasantry. He passed legislative reforms on religious matters, and by issuing edicts against the image worshippers gave rise to the great iconoclast controversy (see ICONOCLASTS). He attempted to transfer S. Italy, Greece, and Macedonia from the Lat. patriarchate to that of Constantinople, with the result that the prov. of Ravenna separated from the empire.

**Leo V, Flavius**, surnamed the Armenian (d. 820), Byzantine emperor, served as a commander under Nicephorus, but was exiled for treachery in 811. Later he was recalled and made commander of the E. army by Michael I, and went with the latter on an expedition against the Bulgarians. During a battle near Adrianople the army became disaffected and L. withdrew with his own forces, leaving Michael to defeat. L. was then crowned at Constantinople (813) and in the succeeding 2 years subjected the Bulgarians to 2 decisive defeats. His persecution of image worshippers, however, made him unpopular, and he was assassinated (820) by the friends of Michael the Stammerer, who was raised to the throne as Michael II.

**Leo VI, surnamed Sapiens and Philosphus** (d. 912), Byzantine emperor, succeeded his father Basilus I in 886. His earliest act was to depose Photius, patriarch of Constantinople. Most of his reign was occupied in minor wars against barbarians and conflicts with the church.

The origin of his surname is unknown, though Gibbon suggests that it was given only because he was less ignorant than most of his contemporaries in matters of Church and State. He did, however, complete the digest of Justinian's code; a work on military tactics is sometimes attributed to him, and sometimes to Leo III.

**Leo, Leonardo** (1694-1744), It. composer, b. near Brindisi. While studying at Naples from 1709-13 his sacred drama, *L'Infedeltà abbattuta*, was performed by his fellow students. But he became especially important as an operatic composer and had a great influence particularly on later It. masters of comic opera. His output of stage and sacred music was enormous.

**Leo**, or the **Lion**, fifth sign of the zodiac (q.v.), the sun entering it about 22 July. The constellation can be easily found by drawing a line through the Pole Star and the third star of the Plough ( $\gamma$  Ursae Majoris). This line intersects L. at the star  $\beta$  Leonis, about magnitude 2. The 3 brightest objects in the constellation are Regulus ( $\alpha$  Leonis), first magnitude, at the bottom of the well-known 'sickle,' and the stars  $\delta$  and  $\gamma$  Leonis (magnitude 2.2).

**Leo Africanus** (Alhassan Ibn Mohammed Alwazzan), Berber traveller of the 15th cent. He travelled extensively in N. and central Africa and Asia Minor, and while returning from Egypt was captured at sea by pirates and taken to Rome, where he was converted to Christianity. His account of his journeys, written in It., was pub. in 1550 by Istanbuli. Other works include poems, lives of Arab philosophers and physicians, and a Sp.-Arabic dictionary.

**Leo Alatiuss**, see ALLATIUS, LEO.

**Leoben**, Austrian tn in the prov. of Styria, on the Mur. It has a mining school, and is the centre of a lignite and iron mining area. Pop. 35,650.

**Leobschütz**, see GLUBCZYCE.

**Leochares** (fl. 350 BC), eminent Gk sculptor, was a pupil of Scopas, with whom he worked on the Mausoleum (q.v.). With Lysippus he executed a group in bronze representing Alexander at a lion hunt. He also made busts of Alexander, statues of Zeus, Ares, and of the family of Philip of Macedon. All his works are lost, but the statuette in the Vatican of 'Ganymede carried away by an Eagle' is probably a copy of his work.

**Leominster**: 1. Bor. and mrkt tn of Herefordshire, England, situated at the confluence of the Lugg and 2 other small rivs. It is 12 m. from Hereford and 137 m. from London. It has regular and wide streets and has some fine old timbered houses. The magnificent church has a Norman nave and fine examples of window tracery. It was restored in 1866 and enlarged by the addition of the S. nave in 1879. The tn hall was built in 1855. Formerly a centre of the wool trade, with certain merchant guilds, L. now trades chiefly in livestock and other agric. produce. The tn originated in a monastery founded by the Mercian king.

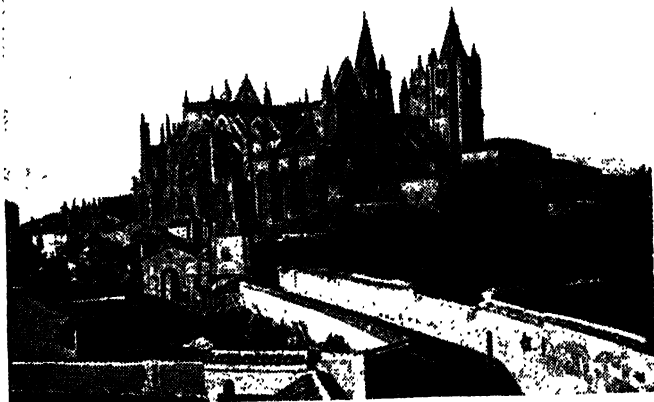
Merwald, who had a castle near by, where a fortress stood till 1055, when it was destroyed by the Welsh. The tn's charter of incorporation was granted by Queen Mary Tudor. L. was represented by members of Parliament as early as 1295, but in 1868 its representation was reduced to one member. Pop. 6120.

2. Tn in Worcester co., Massachusetts, U.S.A., 40 m. WNW. of Boston, manufacturing toys, clothing, plastics, paper, machinery, and tools. Pop. 24,100.

León, Fray Luis de (c. 1527-91), Sp. poet and theologian, b. Belmonte del Tajo. In 1561 he was elected to the chair of theology at Salamanca. He was

de L. in the W. separate the basins of the Duero and the Miño (qq.v.). In the S. and E. are plains, part of the Castilian plateau. Sheep-rearing and agric. are the main occupations, and coal and iron are found. Area 5937 sq. m.; pop. 558,500.

3. Sp. tn, cap. of the prov. of L., on a plateau 2695 ft high, at the confluence of the Torio and Bernesga. It grew up on the site of a Rom. camp, and in the 10th cent., after its recapture from the Moors, became the cap. of the kingdom of L. It has a very fine Gothic cathedral, and sev. other old churches, including one dating from the 11th cent. Parts of the old



LEÓN CATHEDRAL

imprisoned from 1572 to 1577 because of his trans. of the Song of Solomon. In his fine prose poems *De los Nombres de Cristo*, 1583-5, and *La Perfecta Casada*, 1583, as well as in his charming lyrics, such as *La Noche Serena* and *De la rida del cielo*, will be found a rare blend of (ik purity and Heb. passion. See life by A. F. C. Bell, 1925, and A. G. Palencia, *Fray Luis de León en la poesía castellana. Historias y leyendas*, 1942.

León: 1. Region of NW. Spain, comprising the provs. of L., Palencia, Salamanca, Valladolid, and Zamora (qq.v.). In the 10th cent. a kingdom of L. was formed when the cap. of the old kingdom of the Asturias (q.v.) was moved from Oviedo to L. After periods of independence and of unity with Castile and Aragon, this kingdom was finally united with Castile in 1230.

2. Sp. prov. in the region of L. (see 1 above). It is hilly in the N. and W., in which directions it is bounded by the Cantabrian Mts (q.v.). The Montañas

walls remain. Linen, pottery, and leather are manuf. Pop. 65,000.

4. Formerly the cap. of Nicaragua (q.v.), 50 m. NW. of Managua (q.v.), the present cap. Tanning and the manuf. of textiles and boots and shoes are the staple industries. The ornate Renaissance cathedral (completed in 1774) and the many handsome public buildings, such as the National Univ., lend dignity to the tn. L. was the bp. of Rubén Darío (q.v.), Lat. America's greatest poet. Pop. 59,110.

5. Tn in Guanajuato prov., central Mexico, 30 m. W. by N. of Guanajuato. There are fine public buildings and an airport. Wheat and other cereals are grown in the area, and the tn has manufs. of cotton and woollen goods, pottery, and leather goods. Pop. 74,160.

Leonard, Frederick, see LONSDALE.

Leonard, Thomas Arthur (1864-1948), pioneer of open-air holidays, b. Stoke Newington. Studied in Germany and at the theological college in Nottingham, afterwards becoming a minister of the

Congregational Church in Lancs. His observation of the futile use which the industrial workers of the N. made of their leisure revealed to him a vision of an enlightened society without barriers of class, creed, or colour, and encouraged by friends he found opportunity of putting his theories into practice through the medium of holidays. In the early nineties the Co-operative Holidays Association, and in 1913 the Holiday Fellowship (q.v.), were founded. He was the first general secretary of each of these bodies, and he played a prominent part in starting youth hostels (q.v.), the Greycourt Fellowship, and International Tramping Tours. He was awarded the O.B.E. in 1935.

**Leonardo da Vinci** (1452-1519), It. painter, sculptor, engineer, and architect, b. Vinci, near Empoli. His father was Ser Piero da Vinci, a Florentine lawyer, and his mother (Catarina) was of humble birth and unmarried. He ranks not only as one of the greatest artists, but also as one of the great scientists and inventors. The child was brought up in his father's household, and from his earliest years showed the greatest promise for the future. Among his early pursuits were music, modelling, and drawing. His father placed him under the tuition of Andrea del Verrocchio (q.v.), and in his studio L. da V. worked with Sandro Botticelli and Pietro Perugino, and other less famous men such as Lorenzo di Credi. If tradition is to be believed, he was soon able to teach his master. Verrocchio allowed his pupil, then about 18, to paint a kneeling angel in the picture of 'Christ's Baptism,' and the result was such that Verrocchio knew that he could teach L. da V. nothing more. The picture is now in the Academy at Florence. In 1472 he was enrolled in the painter's guild at Florence. Somewhere about 1477 Lorenzo the Magnificent appears to have taken him into special favour, and under his protection L. da V. worked independently until 1481. During this time he was filled with projects of all kinds of architecture, hydraulics, mechanics, and engineering, also studying and observing every branch of science and philosophy. Astronomy, cosmology, geology, and anatomy, all came within his scope. As a natural scientist he was highly original and inventive, as may be judged from his voluminous *Notebooks*, and he was a pioneer in the then almost non-existent science of aeronautics (q.v.).

His art was not the reviving of lost glories, but the finding of fresh revelations in living and often obscure things. Thus the minute study of insects and reptiles enabled him, when young, to paint a very fearsome dragon on a wooden shield; and a later picture, his 'Medusa,' impressed those who saw it by its combination of the sinister and grotesque with a tragic beauty. From Florence he went to Milan, about 1482, and here, under the protection of Ludovico Sforza, he commenced various works, among them the equestrian monument to Francesco Sforza of which only the model was completed,

and the world-famous fresco of the 'Last Supper,' in the refectory of the convent church of S. Maria delle Grazie. This masterpiece, in which L. da V. used an experimental oil medium, suffered from the damp wall on which it was painted. The picture became blistered and mildewed, and after many years Cavaliere Cavenaghi restored as far as is possible the wonderful gift to posterity left by L. da V. From Milan he went to Venice, and while commencing various pictures spent half his time in gigantic plans of engineering work. In 1502 he travelled as chief engineer to Caesar Borgia, mapping out the country and planning and arranging canals, harbours, and various restorations, but in 1503 he was back again in Florence. His next commission was the decoration of the council hall of the Signory; Michelangelo was also commissioned to produce a battle scene on another wall of the same apartment. L. da V.'s cartoon, the 'Battle of Anghiari,' was finished in 2 years and was exhibited with that of Michelangelo. The violent action and extraordinary vitality of both these great works moved the whole of Florence to passionate admiration. Raphael, then only 19, came to watch these two at work. L. da V. left the painting unfinished, however, and used an experimental technique which destroyed what he had done. The portrait of Mona Lisa (or 'La Gioconda'), the wife of Francesco Zanobi del Giocondo, was finished in 1504; that mysterious, smiling picture was perhaps his masterpiece—a work of rare suggestion and subtle elusiveness, such as L. da V. loved. Francis I bought it later for 4000 golden florins, and it was placed in the Louvre, from which it was mysteriously stolen in 1912, but was later recovered and returned.

In 1506 L. da V. returned to Milan and later accompanied Francis I back to France. The last 24 years of his life were spent at the castle of Cloux, near Amboise, which had been presented to him. Only a few of his works have survived; many were begun and never finished. Among his surviving works are the 2 pictures of 'Our Lady of the Rocks' in the Louvre and the National Gallery, the latter probably helped out by his pupil Ambrogio de Predis; 'St Anne' and 'John the Baptist,' now in the Louvre; the noble cartoon, 'Virgin and St Anne' (Royal Academy, London); and many studies and drawings at Christ Church, Oxford, Windsor, and elsewhere. A wax bust of 'Flora' was discovered and attributed to L. da V. in 1909 and bought as such by the Kaiser Friedrich Museum in Berlin. Its authenticity remains dubious. See E. MacCurdy, *Leonardo da Vinci*, 1907; W. von Seidlitz, *Leonardo da Vinci*, 1909; J. This, *Leonardo da Vinci: the Florentine Years of Leonardo and Verrocchio*, 1913; D. Merejkowski, *Romance of Leonardo da Vinci*, 1913; A. J. Anderson, *Leonardo da Vinci: the Admirable Painter*, 1915; R. A. Taylor, *Leonardo the Florentine: a Study in Personality*, 1927; J. P. Richter, *The Literary Works of Leonardo da Vinci*, 1939; A. E. Popham, *The Drawings of Leonardo da*

*Vinci*, 1946; Sir Kenneth Clark, *Leonardo da Vinci*, 1952, and *Selected Drawings of Leonardo da Vinci at Windsor Castle*, 1955; also life by Antonina Vallentin, 1939.

**Leonardo of Pisa** (*Leonardus Fibonacci*, or *Pisanus*), It. mathematician b. 1175 at Pisa, date of death unknown. His *Liber abaci* attracted the attention of the Emperor Frederick II, to whose court he was admitted. His other works are *De practica geometriae*, 1220, and *Liber quadratorum*, 1225. He had a great influence on the development of mathematics.

**Leonecavallo, Ruggiero** (1858-1919), It. composer, b. Naples, where he studied at the Conservatory. He wrote a number of effective operas, but *I Pagliacci*, 1892, survives, with scarcely diminished success. *La Bohème*, performed in Venice in 1897, suffered by comparison with Puccini's more famous opera of the same title.

**Leonforte**, tn in Sicily (q.v.), 8 m. NE. of Enna (q.v.). It was damaged during the Second World War. There is a trade in agric. produce, olive oil, and wine. Pop. 23,000.

**Leonid Meteors**, see METEOR.

**Leonidas** (c. 487-480 BC). King of Sparta, in succession to his half-brother Cleomenes. In 480 he marched with his troops against the invading army of Xerxes, King of Persia, and posted his men, numbering 5300, by the narrow pass of Thermopylae. The Persians vainly attempted to force a way through the pass; they were driven back by L. and his gallant band with great slaughter. At length the Malian, Ephialtes, turned traitor and showed the Persians a track to the rear of the Spartan Army. When L. learned that the Persians were crossing the mt he dismissed all the other Greeks except the Thespians and Thebans, declaring that he and the Spartans must needs remain in the post they had been sent to guard. Without waiting for the Persians to attack in the rear he advanced from the pass and charged the enemy masses with his handful of troops. In the hopeless battle which resulted L. was overcome and fell in the fight, his head being afterwards cut off and his body crucified.

**Leonin** (12th cent.), Fr. music scholar, see FRENCH MUSIC.

**Leonine Verse**, medieval Lat. verse-form, consisting of hexameters or alternate hexameters and pentameters in which the final word rhymes with the word preceding the caesura. L. V. was much used for proverbs, e.g. 'Per risum multum poteris cognoscere stultum' ('You may know a fool by his frequent laughing.') Tennyson wrote a set of leonine elegiacs which began:

'Low-flowing breezes are roaming the broad valley dimm'd in the gloaming; Thoro' the black-stemm'd pines only the far river shines.'

**Leonnatus**, a Macedonian, served in the bodyguard of King Philip, and afterwards became a distinguished general in the army of Alexander the Great. Alexander,

remembering how 2 years previously Leonnatus and Peucestes had saved his life in battle, gave the former a golden crown at Susa in 325 BC. On his master's death (323) Leonnatus became satrap of Lower Phrygia; but in 322 he crossed over into Europe to assist Antipater (q.v.) against the Greeks, and was killed in battle.

**Leonov, Leonid Maksimovich** (1899- ), Russian writer, a fellow traveller (q.v.). Wrote stories (*The End of a Petty Man*, 1924) and plays (*The Orchards of Polovchansk*, 1936-8; *The Wolf*, 1938; *Invasion*, 1942; *Lenushka*, 1943), but is best known for his novels (*The Badgers*, 1925; *The Thief*, 1927; *Sol'*, 1930; *Skularevskiy*, 1932; *The Road to the Ocean*, 1935; *The Russian Forest*, 1953). L. is the chief representative of Dostoyevskiy's tradition in contemporary Russian literature.

**Leont'ev, Konstantin Nikolayevich** (1831-91), Russian thinker and publicist, strongly anti-liberal and anti-democratic, denounced the 'levelling bourgeois progress' of Europe, but rejected Slavophilism (see SLAVOPHILES) and advocated Byzantine asceticism. He anticipated some of Nietzsche's ideas. See study by N. A. Berdyayev, 1940.

**Leontini** (modern Lentini, q.v.) was founded by Chalcidians from Naxos, 729 BC. It never attained political importance owing to the proximity of Syracuse. L. was the bp. of Gorgias (q.v.).

**Leontius** (fl. 6th cent.), theologian, b. Byzantium, and entered the monastery of St Saba, Jerusalem. He wrote *Contra Nestorianos*, *Contra Severum*, and other polemical treatises. See life by J. P. Jungius, 1908.



LEOPARD

**Leopard** (*Panthera pardus*), fierce blood-thirsty carnivore found throughout the African continent and S. Asia, though its numbers are rapidly diminishing. Its colour is pale fawn to rufous buff, and the coat is covered with large rosette-shaped spots. It varies in length from 3½ to

4½ ft. and is smaller than the lion or tiger, to which it is closely allied, though it differs from them in climbing trees. The black L. of Java was formerly regarded as a separate species, but is now agreed to be a case of melanism. The L. seems to kill for the love of slaughter; though rarely attacking man unless provoked, it may attack children. For the snow L. see OUNCIE. The clouded L. (*Neofelis nebulosa*) is found in the E. Indies, Malaya, and India; it is about 6 ft long, feeds on small birds and mammals, and lives in trees.

**Leopard, Hunting, see CHEETAH.**

**Leopardi, Giacomo, Count (1798-1837),** It. poet, b. Recanati, of a poor but noble family. He devoted his early years to an unaided study of the classics, with remarkable success. Dissatisfied with his home life, he went to Rome in 1822, hoping to find a more congenial environment, but he suffered an intense disappointment; and in spite of the friendship formed there with Bunsen and Niebuhr, he returned in the following year to Recanati. Here he remained for 10 years, except for short holidays at Florence, Pisa, Milan, and Bologna; at the last named in his brilliant classical scholarship earned for him a commission to edit Cicero and Petrarch (1825). The last 4 years of his life (1833-7) were passed at Naples. L. presents a most fascinating study in psychology and temperament; he is akin in various ways to Heine and d'Annunzio. A sensitive soul, capable of idealism, but embittered by disillusionment and a martyr to ill health, loneliness, and privation, he stands out as the poet of despair; the growing pessimism of his mind is to be clearly traced in his works. His despondency finds its most poetic expression in his *Bruto Minore*, 1824; in 1827 appeared his *Operette Morali*, for the most part a series of imaginary dialogues, which have brought him the same high degree of recognition as a master of prose that his *Idilli* and *Canti* have brought him as a poet; whilst his *Epistolario* in particular is one of the most pathetically beautiful works ever penned. As a masterly genius of literary expression he stands in the front rank of It. poets. It. eds. of his works are by Ranieri (6 vols.), 1845, and De Robertis, 1937-8. The chief Eng. trans. are: (prose dialogues) C. Edwardes, 1882, P. Maxwell, 1905, and J. Thomson, 1905; and (poems) Sir T. Martin, 1904, and J. Heath-Stubbs, 1946. See studies by F. De Sanctis, 1885, 1920; P. Hazard, 1913; G. A. Levi, 1934; A. Tilgher, 1940; A. Zottoli, 1947.

**Leopard's Bane, see DORONICUM.**

**Leopold I (1640-1705),** Holy Rom. Emperor, son of Ferdinand III, became King of Hungary (1655), King of Bohemia (1658), and formally emperor (1658). During his long reign he was engaged in many wars—with Sweden (1660); with the Turks, who, being defeated by Montecuccoli at St Gothard (1664), agreed to the treaty of Vasvár (1664), and who were subsequently defeated outside Vienna itself by John Sobieski of Poland (1683);

with the Protestants of Hungary, whom he suppressed with extreme cruelty with the Sobieski, and defeated at Mohacz (1687) and Zenta (1697). He was engaged in 3 wars with Louis XIV of France, and towards the close of his reign, L., on the death of Charles II (1700), claimed the Sp. throne for his second son, the Archduke Charles, thus beginning the War of the Sp. Succession. Though a conscientious and capable ruler, L.'s narrow bigotry seriously prejudiced his gov.

**Leopold II (1747-92),** Holy Rom. Emperor, son of Francis I and Maria Theresa, b. Vienna, became Grand-Duke of Tuscany in 1765. He was chosen emperor in 1790, on succeeding to the Austrian hereditary dominions on the death of his brother, Joseph II. He managed to re-establish order in Belgium and Hungary and to make an alliance with England, but was chiefly preoccupied with affairs in France, where the life of his sister, Marie Antoinette, was in danger. In 1792 he concluded the treaty of Pilnitz with Prussia for the restoration of Louis XVI of France.

**Leopold I, George Christian Frederick (1790-1865),** King of the Belgians, was the younger son of Francis, Duke of Saxe-Coburg-Gotha, and uncle to Queen Victoria. In 1813 he became cavalry general under the Russian emperor, Alexander I, and fought in the battles of Leipzig and Lutzen (1813-14). The death of his first wife, Princess Charlotte (daughter of George IV and heir-presumptive to the Eng. crown), after one year of married life (1817), was a great blow to him. He remained in England for sev. years, and in 1831 accepted an invitation to become the first king of the newly independent Belgium. He proved a wise and capable ruler. Queen Victoria received much advice from him, and his political experience gave him considerable influence in Europe on affairs. His second wife was a daughter of Louis Philippe of France. See T. Juste, *Leopold I<sup>er</sup>*, 1868, and L. de Lichtervelde, *Leopold I<sup>er</sup> et la formation de la Belgique contemporaine*, 1929.

**Leopold II, Louis Philippe Marie Victor (1835-1909),** King of the Belgians, son of Leopold I. From 1846 to 1865, the year of his accession, he served in the army. In 1853 he married Marie Henriette (d. 1902), daughter of the Archduke Joseph of Austria. Before his father's death he travelled a great deal in the E. and in N. Africa. As a king he will be remembered for the major part he played in the events which led finally to the foundation of the Congo Free State in 1908. He had formed the Association Internationale Africaine (1876), and proceeded to exploit as his private property the almost unexplored regions of the Congo. In view of the serious strictures passed in various quarters, L. himself in 1904 appointed a commission of inquiry into the administration of the area. The pub. of the commission's report (1905), which revealed serious maladministration and abuses,

aroused deep and painful interest, and in 1908 L. handed the tor. over to the state. His rule at home was generally unexceptional, though his family life was notorious for its scandals. His only son predeceased him and he was succeeded by his nephew, Albert.

**Leopold III** (1901- ), ex-King of the Belgians, son of Albert I, whom he succeeded in Feb. 1934. L. was educ. at Eton and Ghent Univ., and served in the Belgian Army. In 1926 he married Princess Astrid of Sweden, who was killed in 1935 when a car which L. was driving crashed in Switzerland. By this marriage L. had 3 children: Baudouin (q.v.) (b. 1930), Albert (b. 1934), and Josephine Charlotte (b. 1927). In Sept. 1941 L. married Mlle Marie Lilian Baels, daughter of an ex-minister. L. stated that his second wife would be known as Princess de Réthy. The children of this marriage have no claim to the throne.

On 10 May 1940 the Germans launched an attack on Belgian airfields and communications. L. took command of the Belgian Army, appealing to the Allies for military assistance. But on 28 May the Belgian Army capitulated on L.'s orders. Piorlot, the Belgian Prime Minister, declared in a broadcast from Paris that L.'s capitulation had no legal validity, that his decision had been taken against the wishes of the Cabinet, that Belgium would continue to resist, and Belgian ministers were henceforth absolved from their allegiance to L.

L. was confined at Laeken, near Brussels, by the Germans, being moved to Germany when the Allies invaded Europe in 1944. He was liberated by the Americans in May 1945. His conduct in 1940 had aroused much hostile comment in Britain, and his actions, coupled with his second marriage, were also condemned by many Belgians. When L. announced his intention of returning to Belgium there was a public outcry. The Prime Minister resigned, and L. withdrew to Switzerland, declaring that he had never collaborated with the Germans and that he had no intention of abdicating. In July 1945 a bill was passed prolonging the regency (Charles, L.'s brother, had been appointed regent in Sept. 1944 when L. was still in Germany) until parl. authority declared it ended. In 1946 L. appointed a commission to investigate his conduct and policy during the war, and its report, issued in 1947, was a justification of L.'s actions. The question of the return of the king continued to dominate Belgian politics. In 1950 a referendum was held; nearly 58 per cent voted in favour of L.'s return, slightly over 42 per cent were against. As a result the regency was terminated and L. and his sons returned to Belgium (July 1950). Rioting and strikes resulted, and civil war seemed imminent. In Aug. 1950 L. agreed to delegate his powers to his son Baudouin. He abdicated in favour of Baudouin in July 1951.

**Leopold, Carl Gustaf af** (1756-1829) Swedish poet, b. Stockholm. In 1786

he was made literary adviser to Gustavus III and member of the Swedish Academy. His classical tragedies, among which may be mentioned *Oden*, 1790, and *Virginia*, 1802, were valued highly by his contemporaries, and his poems are still admired. His collected works were pub. in 6 vols. (1814-33). See O. Holmberg, *Den unge Leopold*, 1953, and *Leopold och Gustaf III*, 1954.

**Leopoldina Railway**, one of the former Brit.-owned railway systems in Brazil, and now owned by the Brazilian Gov. The L. R. system serves a large area to the N. and NE. of Rio de Janeiro, with its main terminal at Rio itself, the total length being 1902 m. It was constructed and developed by Brit. capital and management at a net cost of over £15,000,000, and by 1958 had been in operation for nearly 90 years. It is one of Brazil's 3 main companies.

**Leopoldville** (also known as **Stanley-pool**), since 1926 the cap. of Belgian Congo, central Africa. It stands on the l. b. of the Congo, opposite Brazzaville, and is the cap. of L. prov. and Stanley-pool dist. L. is connected by rail with Matadi, a port on the Congo 230 m. away and 93 m. from the sea. It is likewise connected with Point-Noire (380 m.). There is a regular air service between L. and Brussels. Pop. 16,500 (whites).

**Leosthenes**, Athenian general, was commander of the Greeks in the Lamian war, 323 and 322 bc. He was killed in a siege before Lamia, after having defeated Antipater.

**Leotychides** (491-469 bc), King of Sparta. In 479 bc he was commander of the Gk fleet and distinguished himself as victor at the battle of Mycale.

**Leovigild**, or **Löwenheid** (l. 586), king of the Visigoths in Spain. He was successful in defeating the Byzantines in Andalusia, and by 585 had united all Spain except the S. imperial dists. He was a staunch supporter of Arianism, and was ardent in his persecution of the Catholics.

**Lepage, Jules**, see BASTIEN-LEPAGE.

**Lepanto**, see CORINTH, GULF OF.

**Lepanto**, naval battle fought 7 Oct. 1571, off the tn of L. (Naupaktos) in the Gulf of Corinth, between a Turkish fleet of about 273 galleys under Ali Pasha, with the bey of Alexandria and the dey of Algiers, and an allied fleet of some 200 galleys, and some heavy galleasses. The allies were commanded by Don John of Austria, representing Spain, but the prin. force was contributed by Venice under Barbarigo, Genoa under Andrea Doria, and the papal contingent under Marc Antonio Colonna; Sicily and Naples also sent a force commanded by the Spaniard, Santa Cruz. Pius V had instigated the league in fear of the growing and aggressive power of Turkey in the Mediterranean. The result was a crushing and final blow to Muslim sea power; the Turkish centre was routed, their right wing annihilated, and only part of the left escaped; the Turks are said to have lost 20,000 men, including their prin. leaders. The allies

lost 8000, with Barbarigo. Cervantes lost an arm in this battle.

**Lepchas**, original inhab. of Sikkim. Their number now is uncertain and may well be less than 20,000. Their language is Rong. There is little of tribal organisation, the only grouping being into clans which are in effect family groupings. Nowadays the sole function of these clans is to regulate marriage, since a man must not marry a girl of his own clan. L. believe in a spirit world, but the ordinary man must deal with the spirits by the mediation of a lama. The pop. is practically self-supporting, though some commodities, such as salt, cotton, and oil, are obtained via a Tibetan trade route.

**L'Epée, Charles Michel, Abbé de** (1712-89), Fr. Jansenist, b. Versailles. One of the founders of the system for instructing deaf-mutes largely by means of the manual alphabet and signs. He founded a school for the purpose (1755). He wrote *Institution des sourds et muets, par la voie des signes méthodiques*, 1776. His *Dictionnaire général des signes* was completed by Abbé Sicard. See lives by Valette, 1857; Morel, 1833; Berthier, 1852; also P. Schumann, *Geschichte des Taubstummenwesens*, 1940, and A. Hartmann, *Deafmutism*, 1881.

**Lepers**, see DAMIEN, FATHER, and LEPROSY.

**Lepidolite**, mica of a lilac colour, sometimes violet, found in masses made up of scales containing lithia.

**Lepidoptera**, scale-winged order of insects, comprising butterflies and moths. It is the scales which give the usually gay colours to the 4 wings of the perfect insect. L. have a well-marked metamorphosis through the egg, larval, and chrysalis stages. Most are easily distinguished from other insects, though the clear-wing moths and some of the wingless females may be confused. The perfect insect has usually a long spiral proboscis or tongue by which nectar may be extracted from flowers. The larva or caterpillar has biting jaws which the perfect insect lacks, and usually casts its skin sev. times before pupation. The chrysalis stage is almost or quite inert, and in many cases is passed in a cocoon. See also articles under individual species. See F. W. Frohawk, *Complete Book of British Butterflies*, 1934, E. B. Ford, *Butterflies*, 1945, and vols. on butterflies, moths, and caterpillars in the Wayside and Woodland Series (Warne).

**Lepidosiren**, genus of dipnoid or 'lung' fishes. It is confined to certain rvs. in S. America. See DIPNOI.

**Lepidum Regium**, see REGGIO NELL'EMILIA.

**Lepidus**, name of the famous Rom. patrician clan of the Aemilii.

**Marcus Aemilius Lepidus**, sent as ambas. to Ptolemy, King of Egypt, in 201 BC. Consul in 187 BC, he was pontifex maximus and 6 times princeps senatus.

**Marcus Aemilius Lepidus**, consul in 137 BC, was praised by Cicero for his oratory. His conduct of the Numantine war in Spain was a fiasco.

**Marcus Aemilius Lepidus**, father of the triumvir, proved a grasping praetor of Sicily in 81 BC. At first he sided with Sulla, but, having veered over to the popular party, tried to rescind the Sullan constitution during his consulate in 78 BC. He opposed the burial of Sulla in the Campus Martius, and the bitter quarrel with Catulus, his colleague, to which his opposition gave rise, eventually led to civil war. In 77 BC suffered defeat in the Campus Martius at the hands of Pompey and Catulus, the senatorial leaders.

**Marcus Aemilius Lepidus**, the 'slight, unmeritable man' of Shakespeare's *Julius Caesar*. It was he who proposed Caesar's dictatorship, and in 46 BC was rewarded for his services by being made the dictator's colleague in the consulship. In the civil war which followed Caesar's murder (44 BC), he joined forces with Antony, and was allowed to join him and Octavian in the triumvirate (43 BC). But whilst the other triumvirs fought their enemies abroad, L. was left idle in Rome, and after Philippi was stripped of his provinces, Gallia Narbonensis and Spain. Octavian finally reduced him to impotence after his attempt to seize Sicily for himself (36 BC). Here his undignified public life ends, but he lived on under strict surveillance at Circeii till 13 BC.

**Lepine, Louis** (1846-1933), Fr. police officer, b. Lyons and educ. at Heidelberg and Berlin Univs. In the Franco-Ger. war of 1871 he was a sergeant-major in Rochereau's Scouts. In 1877 he entered the civil service, and in 1892 became prefect of police for the first time and then for some years governor of Algeria. In 1899 he was again prefect of police and, during the next 2 decades, reorganised the service. He formed the *brigades criminelles*, founded a research dept., and estab. a body of riv. police. His fearlessness during riots was proverbial, and he narrowly escaped death on sev. occasions.

**Le Play, Pierre Guillaume Frédéric** (1806-82), Fr. engineer and economist, was a native of La Rivière St. Sauveur (Calvados). After other appointments he became prof. to the School of Mines in Paris, and received a commission from Napoleon III to organise the exhibition of 1855; he afterwards organised the one of 1867.

He pub. *La Réforme sociale en France*, 1864, *L'Organisation du travail*, 1870, *La Constitution essentielle de l'humanité*, 1884, and *Les Ouvriers européens* (6 vols.), 1885. In 1856 he founded the Société internationale des études pratiques d'économie sociale, stressing the value of private property, religion, and family organisation. See F. Auburtin, *Frédéric Le Play d'après lui-même. Vie-méthode-doctrine*, 1906.

**Lepontine Alps**, part of the Alps between the Simplon and Splügen passes. They include also the Adula group close to the sources of the Upper Rhine.

**Leporidae**, hare family, belong to the



order Lagomorpha, distinguished by the presence of 2 pairs of incisors in the upper jaw, whereas all rodents have 1 pair only. The family contains the hares and rabbits (q.v.).

**Leprechaun**, in Irish-Celtic folklore a dwarf or gnome in the form of an old man with wrinkled face, generally a rich curmudgeon who can only be induced by threats of violence to disclose the place where his treasure lies; when caught by human beings he purchases his liberty by revealing the location of a 'crock of gold' which disappears when its hiding-place is found. The L., though peculiar to Ireland, seems indebted to England, at least for his name. In Irish he is called 'Lobaircin,' akin to Eng. 'Lubberkin,' and L. is no doubt a corruption of that word.

**Leprosy**, an endemic, chronic, and mildly contagious disease caused by the *Mycobacterium leprae*, which was first identified as its cause by Dr Hansen of Norway in 1874. L. has, however, been known from time immemorial. In biblical times it was regarded as a visitation from God for certain heinous sins. In this wider sense it was common in Great Britain and Europe throughout the Middle Ages, and many hostels for the shelter of sufferers were estab. in this country, being usually known as leper houses from St Lazarus, the patron saint of the disease. Rigid segregation, mainly under the influence of the Church, effected the disappearance from this country—as endemic—of the disease by the beginning of the 16th cent.; the number of cases now in Great Britain is estimated at between 200 and 300, compared with estimated figures for the world of up to 10 or 12 million and for the Commonwealth 3,000,000.

Prior to the First World War leprosy was mildly endemic in most S. European countries, and the movements caused by war may have increased the incidence. In N. Europe it is not endemic. The central African belt is probably the most highly infected part of the world per head of the pop., though India, China, Japan, and S. America, for which accurate figures are lacking, are heavily infected. Africa, it is estimated, has 1,000,000 to 1,250,000 cases.

The disease is not hereditary, nor a dirt or sex disease. The method of transmission is by continuous close association. Although, like every other disease, it is encouraged by bad health conditions, and is most prevalent where crowded housing makes close contact inevitable, L. is no respecter of class, race, or colour. Liability to infection, however, seems to be confined to young and adolescent children and to a small proportion of adults who are particularly susceptible to it. The incubation period is long and an infection contracted in childhood develops in later life. No specific cure or protection from the disease has been found comparable with penicillin or quinine, but the time-honoured treatment by injections with chaulmoogra oil and its derivatives is

usually beneficial in early cases. During the last 15 years good results have been obtained from the sulphone family of drugs, particularly in severe cases, and research with them and other synthetic drugs is active. The disease is found in 2 main types with intermediate variations. The anaesthetic form is not contagious and can well be treated in out-patient clinics; it is, however, liable, unless treated, to turn into the other type and, since it affects the nervous system, frequently results in disfigurement and maiming through atrophy of the nerves and body extremities. The nodular form affects the skin and mucous membranes and constitutes perhaps one-quarter of all cases. This type is probably the source of infection and spread of the disease by contact, but although it produces nodules and superficial disfigurement, does not normally render the sufferer unfit for work. Such cases should be segregated, or at least isolated from the chance of contact with children. In fact, the protection of children is the most important side of L. control work. The U.N. Children's Fund has been active — supplying money for drugs as well as facilities for early diagnosis.

The difficulties in control of the disease arise from the tradition-mindedness of most of the peoples afflicted with the disease, their lack of health education, and the financial stringency of most of the colonies affected. Although most of the colonies have, under the Colonial Development and Welfare Acts of 1940 and 1945, formed their plans, these have been slow to develop, though Brit. Guiana, Fiji, Nigeria, and others have been active for some time. In 1955 the executive board of the World Health Organisation decided to instigate large-scale campaigns in every country affected by the disease.

Finally the psychological side must be stressed. A leper is everywhere taboo because he has the disease. It is not his fault, and he may well be uninfected. But the taboo reacts on his chances of recovery, and a more humane view of the disease would give him much better hopes, not only of being cured, but of complete rehabilitation. Much more research is necessary, but there is some evidence that B.C.G. vaccine used in the prevention of tuberculosis (q.v.) may be of prophylactic value in L. See A. Weymouth, *Through the Leper Squint*, 1938; P. Burgess, *Who Walk Alone*, 1941; L. Rogers and E. Muir, *Leprosy* (3rd ed.), 1946; R. G. Cochrane, *Practical Textbook of Leprosy*, 1947; E. Muir, *Manual of Leprosy*, 1948.

**Lepsius, Karl Richard** (1810–84), Ger. Egyptologist, b. Naumburg an der Saale. In 1834 he wrote his first book, *Die Paläographie als Mittel der Sprachforschung*. Between 1834 and 1842 he travelled in England, Italy, Holland, and Germany, collecting materials for his dissertations on Egyptian art, and studying the anc. Etruscan and Oscean languages. During these years he wrote *Lettre à M. Rosellini sur l'alphabet hiéroglyphique et Inscriptions Umbricæ et Oscæ*. He led the

Prussian expedition (1842-5) to Egypt, and pub. the results of his researches in *Denkmäler aus Aegypten und Aethiopien* (12 vols.), 1849-59. His other works include *Chronologie der Aegypter*, 1849, *Über den ersten Aegyptischen Götterkreis*, 1851, *Königsbuch der Aegypter*, 1858, and *Standard Alphabet* (2nd Eng. ed.), 1863. See life by G. Ebers, 1887.

*Leptis Magna*, see HOMI, 2.

**Lepus** (the Hare), anct constellation supposed to represent a hare in the act of running from Orion's dog. It is situated directly S. of Orion.

**Le Puy**, or **Le Puy en Velay**, see PUY, LE.

**Le Queux**, William Tufnell (1864-1927), novelist, b. London. He travelled much and made a fine collection of medieval MSS. He wrote over 130 sensational stories, his most famous being *The Invasion of 1910*, 1906, which foreshadowed the First World War. Others are *Guilty Bonds*, 1891, *The Eye of Islar*, 1897, and *Fatal Fingers*, 1912. See N. S. Sladen, *The Real Le Queux*, 1938.

**Lerberghe**, Charles van , see VAN LERBERGHE.

**Lercara Friddi**, tn in Sicily (q.v.), 28 m. SSE. of Palermo (q.v.). It has important sulphur deposits. Pop. (com.) 14,000.

**Leriche**, René (1879-1955), Fr surgeon, b. Roanne, Loire. He graduated in medicine at Lyons, 1906. In 1920 he was appointed prof. of experimental surgery at Lyons, in 1924 prof. of clinical surgery at Strasburg, and in 1928 prof. of medicine at the Collège de France, Paris. His important contributions include work on the physiology and surgery of the blood vessels, and on the relief of pain, particularly by removal of sympathetic nerves.

**Lerici**, It. tn in Liguria (q.v.). It is on the Riviera (q.v.), on the E. shore of the Gulf of Spezia. It has a 12th-cent. castle (now used as a youth hostel) in which is a notable Gothic chapel. L. has a small port and is a popular holiday resort. Pop. 10,000.

**Lérída**: 1. Sp. prov., in Catalonia (q.v.), stretching from the Pyrenees to the Ebro (q.v.). The lowlands have been irrigated by means of canals, but agriculture is still unprofitable. Wine, wool, and cattle are exported, and there are textile manufs. Area 4692 sq. m.; pop. 331,100.

2. (Rom. *Ilerda*; Catalan *Lleyda*) Sp. tn, cap of the prov. of L., on the Segre. It has Rom. remains, and an immense Moorish castle, within the grounds of which is a ruinous 13th-cent. cathedral. There is also a 17th-18th-cent. cathedral. Glass and silk are manuf., and there is a large trade in agric. produce. Near this tn, in 48 BC. Julius Caesar, employing tactics of unsurpassed brilliance, inflicted a crushing defeat on the Pompeian forces under Afranius and Petreius. Pop. 56,150.

**Lerina**, see LÉRINS, ÎLES DE.

**Lérins**, Îles de, group of Fr. is., 2½ m. S. of Cannes, in the Mediterranean. They are in the dept of Alpes-Maritimes. On Ste-Marquerite (anct Lero) the Man in the Iron Mask (q.v.) and Bazaine (q.v.) were

confined. St-Honorat (anct Lerina) has a famous 5th-cent. monastery.

**Lérís**, **Claire Joseph**, see CLAIRON.

**Lerma**, riv. of S. Mexico, rising 18 m. W. of Mexico city and flowing 350 m. into W. Lake Chapala, emerging as the Rio Grande de Santiago and flowing into the Pacific. It is valuable as a source of power for electricity and for irrigation, but is not navigable.

**Lermoliev**, Ivan, see MORELLI, GIOVANNI.

**Lermontov**, Mikhail Yur'yevich (1814-1841), Russian poet and novelist of Scottish ancestry, b. Moscow, became an officer in the Guards. Twice transferred to active service in the Caucasus as punishment for his poem on the death of Pushkin (1837)—an attack on court society—and for participating in a duel. He was killed in the Caucasus in another duel. His novel, *A Hero of Our Time*, 1840, continued the 'superfluous man' theme originated by Pushkin in *Eugene Onegin*. His character and poems were alike Byronic. More truly a romantic than any other Russian poet, his imagination created a glowing supernatural picture in his poem of demoniac love, *Demon*, pub. 1856. See A. Heifetz, *Lermontov in English*, 1942 (a bibliography).

**Lero**, see LÉRINS, ÎLES DE.

**Leroi**, Julien David (1724-1803), Fr. writer on architecture, b. Paris. He went to Rome to study the antiquities. In 1754 he visited Greece for a similar purpose, and on his return pub. his *Ruines des plus beaux monuments de la Grèce* (2nd ed.), 1770, which was the earliest systematic account of the archaeological remains of that country.

**Leros**, one of the Dodecanese near Calymnos in the Aegean, forming part of Greece. Area 21 sq. m. Under It. rule L. became a strong naval base. Vines and olives are grown. In 1948 the Gk Gov. instituted at L. a scheme for reclaiming and re-educating boy bandits who had become victims of rebellion and general unrest in the civil war (see GREECE, *History*). Pop. 7050.

**Le Roy**, Édouard (1870- ), Fr. philosopher, member of the Academy of Moral Political Science since 1919, deputised for Bergson at the Collège de France, 1914, and was titular prof. there from 1921. He is a chevalier of the Legion of Honour. His chief works are *Les Origines humaines et l'évolution de l'intelligence*, 1928, and *Le Problème de Dieu*, 1929. Other works: *Dogme et critique*, 1907; *Une Philosophie nouvelle*: Henri Bergson, 1912; *L'Existence idéaliste et le fait de l'évolution*, 1927; *Introduction à l'étude du problème religieux*, 1944.

**Leroy-Beaulieu**, Henri Jean Baptiste Anatole (1842-1912), Fr. writer and historian, b. Lisieux. From 1881 he was prof. of modern history at the École Libre des Sciences Politiques in Paris. He wrote a series of articles for the *Revue des deux mondes*, 1882-9. In book form these articles became subsequently known as *L'empire des tsars et les Russes*. In

another of his Russian studies, *Un Homme d'état russe*, he told the story of the emancipation of the serfs under Alexander II. He also wrote sev. books in Judaism and the Jews, and on Rom. Catholicism and the papacy.

**Leroy-Beaulieu, Pierre Paul** (1843-1916), Fr. economist, brother of the preceding, became prof. of political economy at the Collège de France. In his popular *Le Collectivisme*, 1883, he purported to expose the errors of collectivist doctrines. Other of his works are *La Colonisation chez les peuples modernes*, 1874, and a *Traité de la science des finances*, 1877.

**Lerroux, Alejandro** (1864-1949). Sp. statesman, b. La Rambla, Cordova. He took a prominent part in the formation of the Sp. Rep. in 1931, being the first foreign minister in the provisional gov. of Radical Socialist, Socialist, and Republican Alliance parties, and was Prime Minister sev. times between 1931 and 1936. He took no active part in politics after the outbreak of the civil war.

**Lerwick**, seaport and cap. of the Shetland Is. (q.v.). Scotland, and the most northerly tn of size in the U.K. L. is on a natural harbour on the E. coast of the mainland, sheltered by the is. of Bressay, and lies 115 m. to the N.E. of Kirkwall in Orkney. L. is an important fishing station, and also a centre for the Royal Naval Reserve, who use the old Cromwellian fort as their depot. The New Year is celebrated in L. during the first week of Jan. with the festival called *Up-Helly-Aa* which includes the burning of a replica of a Viking galley. Pop. 5500.

**Lesage, Alain René** (1668-1747), Fr. novelist and dramatist, b. Sarzeau, Morbihan. An assiduous writer, he pub. over a hundred dramas, the best of which are *Crispin rival de son maître*, 1707, an extravagant farce of a knavish valet, and *Turcaret*, 1709, a brilliant and essentially Molièresque comedy and satire on the contemporary dealers in finance. But his fame now rests on his romances, *Le Diable boiteux*, 1707, and *Gil Blas de Santillane*, completed in 1735. Though the scene of the latter, his masterpiece, is laid in Spain, it is the life of Paris which is painted. The characters of Gil Blas and the preposterous quack, Dr Sangrado, as also of the sprightly demon Asinodens in *Le Diable boiteux*, are drawn with the detachment of a great artist, whilst as a stylist L. ranks with the best authors of his day. See study by E. Linthilhac, 1893, and G. Lanson, 'Études sur Gil Blas' in *Hommes et livres*, 1895.

**Les Andelys**, see ANDELYS.

**Lesbonax**, Gk rhetorician, who lived in the days of Augustus. According to Suidas he wrote at least 16 political orations, but 2 only have survived. See F. Kichr (ed.), *Lesbonactis quae supersunt*, 1907.

**Lesbos**, see MYTILINI.

**Les Cayes**, see CAYES, LES.

**Lesoot, Pierre** (d. 1568), Fr. architect, b. Paris. He began as a painter, but turned to architecture before he was 21. The

original design of the Hôtel Carnavalet, Paris, c. 1544, is attributed to him, working in conjunction with Jean Goujon the sculptor. They jointly won the competition held in 1543 for rebuilding the Louvre in Paris; and the Fontaine des Innocents, Paris, 1547-9, is also their joint work.

**Lése-majesté**, see LEZE-MAJESTY.

**Lesina**, see HVAR.

**Leskov, Nikolay Seménovich** (1831-95), Russian writer, one of the best masters of the Russian language. His novels (*Cathedral Folk*, 1872) and stories (*The Enchanted Wanderer*, 1873; *The Scaled Angel*, 1873, and many others) deal mainly with the life of the church and clergy, the beliefs and superstitions of the people—all this in a language whose richness and colourfulness are unsurpassed in Russian literature. Strongly anti-Radical in his political views (*No Way Out*, 1864), L. was regarded with suspicion by the Conservatives because of his sharp exposure of eccles. bureaucracy; he was attacked from both sides or ignored; full appreciation came only after his death.

**Leskovac**, tn in Serbia, Yugoslavia, on the Voternica. It is the centre of the Yugoslav textile industry, and is a mkt tn for the produce of the fertile surrounding dist. Furniture and soap are also manuf. Pop. 24,650.

**Leslie, Lesly**, or **Lesley**, Scottish family, descended from Malcolm, son of Bartholf, who lived during the latter part of the 12th cent. in Lesslyn or Leslie, in Aberdeenshire. In 1457 the family received a title by the conferment of the earldom of Rothes on George L., a native of Rothes. The 7th earl was created Duke of Rothes, Marquess of Ballinbreich, but d. without issue, the title continuing through the family of his eldest daughter. Connected with the Earls of Rothes are the Earls of Leven, descended from Alexander L. (q.v.); the Lords Lindores, whose title was created in 1600 and became extinct in 1775; and the Lords Newark, the first of whom was David L. (q.v.).

**Leslie, Alexander, Lord Balgonie**, 1st Earl of Leven (c. 1580-1661), general, a native of Aberdeenshire. He enlisted as a common soldier in the army of Gustavus Adolphus, King of Sweden, but by 1636 he had been promoted to the rank of field marshal of Sweden, and his gallantry was rewarded by a knighthood. He fought with great distinction in the Thirty Years War, holding the chief command under Gustavus. In 1620 he successfully defended Stralsund against the insurgent imperialists, led by Wallenstein. Nine years later he was recalled to Scotland to resist the eccles. policy of King Charles I and set himself to organise the Covenanting army. With his army he marched S. to Duns Law in 1639, and in 1640 reached Newcastle, which he held till the treaty of Ripon in 1641. In Aug. of that year he was received by the king and created Earl of Leven and Lord Balgonie. He fought in Ireland in 1642, and later commanded the Scots Covenanters against the Royalists in the

Civil war. Charles surrendered to him at Newark in 1647. After the execution of the king he worked for the restoration of Charles II, and fought against Cromwell at Dunbar in 1650. In 1651 he was imprisoned in the Tower, and on his release retired to Scotland. See C. S. Terry, *The Life and Campaigns of Alexander Leslie, First Earl of Leven*, 1899.

**Leslie, Charles Robert** (1794-1859), painter and writer, b. London of Amer. parents. His first successful picture was 'Anne Page and Slender' (1817), which was followed by 'Sir Roger de Coverley going to Church' (1819). He chose his subjects chiefly from the works of Shakespeare, Addison, Fielding, and Cervantes. In 1824 he was elected an R.A. after the exhibition of his 'Sancho Panza and the Duchess' (1826). He was appointed prof. of drawing at the Military Academy at West Point (1833-4) and prof. of painting at the Royal Academy (1848-51). He also gained some popularity as a writer, his chief books being *Handbook for Young Painters*, 1845, a life of Constable, 1845, and of Sir Joshua Reynolds, which was completed by Tom Taylor, 1865, who also ed. his *Autobiographical Recollections*, 1860.

**Leslie, David, Lord Newark** (1601-82), general, fifth son of the 1st Lord Lindores. He took part in the Thirty Years War, serving under Gustavus Adolphus, but returned to Scotland about 1640 at the time of the rise of the Covenanters against King Charles I. Joining the troops under his kinsman, Alexander L., Earl of Leven, as lieutenant-general, he was present at the battle of Marston Moor (1644), routed Montrose at Philiphaugh (1645), and fought in the siege of Newark, when Charles took refuge in the Scottish camp. With the Earl of Leven and the rest of the Covenanters he went over to the Royalist side, and after some strategic success was taken prisoner by Cromwell at Worcester in 1651 and was confined in the Tower till the Restoration. In 1661 he was created Lord Newark.

**Leslie, or Lesley, John** (1527-96), bishop and historian, b. Kingussie, Inverness-shire, where his father, Gavin L., was rector. He studied at Aberdeen, Poitiers, and Paris, and became a priest in 1558. In 1561 he went to France to bring home the young Queen Mary, whose friend and spiritual adviser he continued to be to the end of his life. His promotion was rapid. He was appointed prof. of canon law, Aberdeen (1562), privy councillor (1565), and Bishop of Ross (1566). On the imprisonment of Mary in England, he appeared as her ambas. before Elizabeth, plotted for her escape, and made plans for her marriage to the Duke of Norfolk. He was imprisoned in the Tower (1571-1573) and was afterwards banished from England. While on the Continent pleading Mary's cause he pub. *De Origine, Moribus, et Rebus Gestis Scotorum*, Rome, 1578. In 1578 he was made suffragan and vicar-general of the diocese of Rouen. He was appointed Bishop of Coutances in Normandy (1593); d. in an Augustinian

monastery near Brussels. His writings include *A Treatise concerning the Defence of the Honour of Marie, Queen of Scotland*, 1569. See E. G. Cody's ed. of his Scottish hist., 1888-95.

**Leslie, Sir John Randolph Shane**, (1885- ), novelist and biographer, b. London, son of an Irish baronet. Educ. at Eton, Paris, and Cambridge, he visited Russia in 1907 and became a friend of Tolstoy. In the following year he was converted to Rom. Catholicism. From 1916 to 1925 he was editor of the *Dublin Review*, and in 1921 he was appointed Privy Chamberlain of Sword and Cape to the Pope. His novels include *The Oppidan*, 1922, *Doomsland*, 1923, *Massquerades*, 1924, and *The Cantab*, 1926, with its sequel, *The Anglo-Catholic*, 1929. Among his biographies are *Manning, his Life and Labours*, 1921, *George the Fourth*, 1926, *The Skull of Swift*, an *Extempore Eulogium*, 1928, and *Cardinal Gasquet, a Memoir*, 1953. He also pub. sev. books of verse and an autobiographical work, *The Film of Memory*, 1938.

**Leslie, Thomas Edward Cliffe** (1827-82), political economist, b. in co. Wexford, Ireland. In 1853 he was appointed to the chair of jurisprudence and political economy at Queen's College, Belfast. His papers on industrial economy were collected in *The Land Systems*, 1870, *Essays on Political and Moral Philosophy*, 1879, and *Essays in Political Philosophy*, 1888.

**Leslie**, burgh and mkt tn of W. Fifeshire, Scotland, on the Leven, 3½ m. S. of Falkland, with bleach works, and flax-spinning and paper-mills. Pop. about 3000.

**Lesmahagow**, tn and par. of Lanarkshire, Scotland, 12 m. S. of Hamilton, with fruit-growing and nylon manufs. Pop. 11,552.

**Lesparre-Médoc**, Fr. tn. cap. of an arron., in the dept of Gironde. It has a trade in wines. Pop. 3100.

**Lespinasse, Jeanne Julie Eléonore de** (1732-76). b. Lyons, the illegitimate daughter of the Comtesse d'Albon. For 10 years (1754-64) she acted as companion to Mme du Deffand, and in her *salon* made the acquaintance of d'Alembert and other members of her brilliant coterie. But the attractions of her companion roused the jealousy of Mme du Deffand, and a violent quarrel ensued, the result of which was that Mme de L. set up a rival *salon*, and d'Alembert shared her roof. She did not, however, accept him as her lover, but, as her *Lettres* (pub. in 1809) reveal, was the victim of a devouring passion for the Comte de Guibert, and in a lesser degree for the Sp. Marquis de Mora. See A. Beaumier, *La Vie amoureuse de Jeanne de Lespinasse*, 1928, and G. Truc, *J. de Lespinasse*, 1942.

**Lesse**, riv. of Belgium and one of the main tribs. of the Meuse, rising in the prov. of Luxembourg, Ardennes, and flowing NW. through the prov. of Namur. It joins the Meuse at Anseremme, 2 m. S. of Dinant. At Belvaux the waters of the L. disappear to continue for 24 hrs their mysterious underground course,

which has formed the famous caves of Han.

**Lessee**, see LESSINES.

**Lesseps**, Ferdinand, Vicomte de (1805-1894), Fr. diplomatist and engineer, b. Versailles. In 1828 he was sent as assistant vice-consul to Tunis, and in 1832 he was appointed vice-consul at Alexandria. He received the Cross of the Legion of Honour for his heroic conduct during an epidemic of the plague (1834). He became consul at Cairo, and while there began his plans for the construction of the Suez Canal. In 1837 he married Mlle Agathe Delamalle. His second wife was Mlle Antard de Bragard. By his first marriage he had 5 sons, by the second 12 children. He served as consul at Rotterdam, Malaga, Barcelona, and Madrid. In 1854 he received the concession authorising him to pierce the isthmus of Suez. He obtained, by subscription, more than half the capital he needed, and the canal was finished in 1869 (see SUEZ CANAL); for this he received the Grand Cross of the Legion of Honour and an Eng. knighthood. In 1881 he commenced the Panama Canal. The funds were insufficient and political trouble followed; the company was wound up in 1888, and the directors were charged with fraud (see PANAMA CANAL). De L. came to England enfeebled in health and broken with trouble. He was later exonerated of complicity in the fraud and returned to France, where he d. at La Chenaie in Berry. He was a man of great courage, with a reverence for duty and honour, possessing simple tastes and an affectionate nature. He was a member of the Fr. Academy and of the Academy of Sciences. See G. Smith, *The Life and Enterprises of Ferdinand de Lesseps*, 1893, and J. d'Elbée, *Un Conquistador de génie*, 1938; also life by H. J. Schonfeld, 1937.

**Lesser Antilles**, see BARBADOS; LEEWARD ISLANDS; TOBAGO; TRINIDAD; VIRGIN ISLANDS; WINDWARD ISLANDS; see also ANTILLES and WEST INDIES.

**Lesser Brethren**, see FRANCISCANS.

**Lesser Celandine**, see RANUNCULUS.

**Lesser Pettychaps**, see CHIFFCHAFF.

**Lessines** (Flem. *Lessen*), tn in the prov. of Hainaut, Belgium, situated on the R. Dender, 19 m. NNW. of Mons. It has important porphyry quarries and manufs. of safety matches and electric lamp bulbs. Tobacco and medicinal plants are largely cultivated in the surrounding dist. Pop. 9600.

**Lessing**, Gotthold Ephraim (1729-81), Ger. essayist, critic, and dramatist, b. in Kamenz in Upper Lusatia (Saxony). After 5 years at Meissen he passed in 1746 to Leipzig Univ. to study theology, but found more attraction in philosophy and literature. After a few years' literary hackwork in Berlin he went to Wittenberg (1751-2) where, in the course of extensive reading, he took his M.A. The next 2 years were spent in Britain studying Lat. and Eng. literature; in 1754 appeared his first work of importance, *Vademecum für den Herrn G. S. Lange*. About this time he became intimate with Nicolai,

and collaborated with Moses Mendelssohn in the brilliant essay *Pope, ein Metaphysiker*, 1755; the same year saw the pub. of his first drama of any worth, *Miss Sara Sampson*, the outcome of his studies in Eng. literature. The Seven Years War (1756-63) cut short a 3 years' tour L. had projected, and he returned to Leipzig; but 1758 found him again in Berlin with Nicolai and Mendelssohn, with whom he issued a jour., *Literaturbriefe*, consisting of letters in criticism; the 54 letters which L. himself contributed are the direct antecedents of his later writings, and possess much of the same elegance, force, insight, and originality. From 1760 to 1765 he was secretary to the governor of Breslau, but returning to his literary career he produced in quick succession 2 of his finest masterpieces: *Laocoon*, 1766, one of the greatest constructive critical works on aesthetics ever written, and *Minna von Barnhelm*, 1767, the first great comedy in the Ger. language in point of both chronology and merit. His essays on the Fable (1759) and the Epigram (1771) must also be mentioned. His ideas found a maturer expression in his *Hamburgische Dramaturgie*, 1769, the outcome of his short-lived connection with the National Theatre of that tn. A series of brilliant pamphlets followed, notably the essay *Wie die Alten den Tod gebildet*, 1769, written in controversy against Klotz and the whole school of eclectics, who had attacked his *Laocoon*. The following year he became librarian at Wolfenbüttel, under the patronage of the Duke of Brunswick, with whom he subsequently travelled in Italy; and here *Emilia Galotti*, 1772, his greatest tragedy, was pub. In 1776 he married Eva König, but she d. in childbirth after little more than a year's conjugal happiness. Meanwhile L. had become entangled in theological controversy against orthodox Lutheranism under George of Hamburg, his chief attack being the *Reimaruss Fragmenten*; but for fear of incurring the displeasure of his patron he returned to 'his old pulpit, the stage,' and summed up his ideas on toleration in the splendid dramatic poem, *Nathan der Weise*, 1779. The following year saw the completion of the masonic dialogues, *Ernst und Falk*, and also *Die Erziehung des Menschengeschlechts*, the corner-stone of his theological writings and his last work of importance. His works rank as monuments of constructive criticism; they bear witness to his profound learning, and are written in an exceptionally concise and vivid style. There are eds. of his works by K. Lachmann (12 vols.), 1838-40; (24 vols. re-ed. by F. Muncker, 1886-1924, 3rd ed.); E. Bell (dramatic works, 2 vols.), 1879; R. Boxberger and H. Blümmel (14 vols.), 1883-90; J. Petersen and M. von Olshausen (25 vols.), 1925-9. See A. von Arx, *Lessing und die geschichtliche Welt*, 1944, and H. B. Garland, *Lessing: the Founder of Modern German Literature*, 1949; also lives by J. Sime, 1877; H. Zimmern, 1878; T. W. H. Rolleston, 1889; E. Schmidt (4th ed.), 1923; H. Schneider, *Zwölf biographische Studien*, 1951.

**L'Estrange, Sir Roger** (1616-1704), pamphleteer, b. Hunstanton, Norfolk, and probably educ. at Cambridge. He accompanied Charles I on his expedition against the Scots, and during the Civil war was captured by the Parliamentarians in an attack on Lynn and condemned to death as a spy. He was relieved and imprisoned in Newgate, but escaped in 1648 and fled to the Continent, returning to England in 1653, and making terms with Cromwell. He wrote various anonymous pamphlets attacking the Commonwealth, and was made licenser of the press at the Restoration. In 1663 he estab. the newspaper the *Public Intelligencer*, and also the *News*, which in 1665 became the *London Gazette*. From 1675 to 1680 he issued the *City Mercury*, or *Advertisements concerning Trade*, and in 1679 he founded the *Observer*. He lost his office as licenser at the revolution of 1688.

**Le Sueur, Eustache** (1617-55), Fr. painter, b. Paris, was the pupil of Vouet (q.v.) and noted for his religious paintings. His best work is a series of panels on the life of St Bruno. These and other works, including 'Angel and Hagar,' 'St Paul preaching at Ephesus,' and numerous fine drawings, are in the Louvre, Paris. See life by G. Rouchès, 1923.

**Lesueur, Jean François** (1760-1837), Fr. composer, b. Drucat, near Abbeville. He was musical director at the cathedral of Notre-Dame, Paris, 1786-8. From 1795 to 1802 he was inspector of studies at the Paris Conservatoire, and in 1804 he was appointed *maestro di capella* to Napoleon, for whose coronation L. composed the musical service. Louis XVIII retained him at his court, and in 1818 appointed him prof. at the Paris Conservatoire. His operas include *La Caverne*, *Ossian*, and *Paul et Virginie*. He wrote much church music and introduced some orchestral innovation anticipating Berlioz, who was his pupil.

**Le Sueur, William Dawson** (1840-1917), Canadian author and historian, b. Quebec. Educ. at Montreal High School and Toronto Univ. From 1888 to 1902 he was secretary of the post office dept, and later became vice-president of the Canadian Society of Authors. He was joint editor of *The Makers of Canada* series, to which he contributed a life of Count Frontenac (1906). He also wrote *Evolution and the Positive Aspects of Modern Thought*, 1884.

**Leszno** (Ger. *Lissa*), tn of Poland, in Poznań prov., 40 m. SSW. of Poznań (q.v.). There are lignite mines near by, and the tn has a trade in agric. produce, and manufs. rolling-stock and machinery. Pop. 24,000.

**Letchworth**, tn of Herts, England, 37 m. N. of London. It was founded in 1903 as the first garden city on the lines suggested by Sir Ebenezer Howard (q.v.) in *Tomorrow: a Peaceful Path to Real Reform*, 1898, subsequently pub. as *Garden Cities of Tomorrow*, 1898, and has been developed as an industrial and residential tn by the L. Urb. Dist. Council and First

Garden City Ltd., on an estate of 4897 ac. A permanent rural belt surrounds the development. There are over 150 factories and workshops in the industrial area, the leading industries being heavy and light engineering, tabulating machinery, printing, bookbinding, embroidery, parachutes, perambulators, photographic papers, the manuf. of refuse-collection vehicles, furniture, corsets, and scientific instruments. Careful balance is maintained between industries requiring male and female, skilled and unskilled labour. Schools include L. Grammar School (Education Authority), St Francis College, a Rom. Catholic boarding and day school in impressive modern buildings for over 500 pupils directed by the Sisters of Charity, St Christopher's School (co-educational), and the N. Herts Technical College, recently built. L. is within the outer country ring suggested in the Greater London Plan, 1944, and the proposed optimum pop. is 32,500. It is one of the healthiest tns in England and an outstanding example of modern in planning. Pop. 21,260. See also GARDEN CITIES. See the books issued by First Garden City Ltd., and C. B. Purdom, *The Garden City*, 1913, and *The Building of Satellite Towns*, 1925, 1949.

**Le Tellier, François Michel**, see LOUVOIS.  
**Lethaby, William Richard** (1857-1931), architect and writer on architecture, b. Barnstaple. Studied abroad, entered the office of Norman Shaw (q.v.), and began practice about 1891. His buildings are few and unimportant, but he was surveyor of Westminster Abbey, 1906 to 1928. He became principal of the L.C.C. Central School of Arts and Crafts, 1894, and first prof. of design at the Royal College of Art, 1900. A follower of Wm Morris (q.v.), he introduced his theories into his admirable books on the hist. and nature of architecture.

**Lethargic Encephalitis**, see ENCEPHALITIS.

**Lethargy**, state of unnaturally sound or prolonged sleep or stupor, from which the sufferer can be aroused only with great difficulty. It is intermediate between heavy sleep and complete coma, and may be the result of excessive exertion, either of mind or body, but is more often occasioned by conditions similar to those which cause coma (q.v.).

**Lethbridge** (formerly Coalbanks, later Coalhurst), city of Alberta, Canada, 145 m. SSE. of Calgary. L. owes its existence to coal-mining; prior to 1885 it was known as Coalbanks because of the large deposits of coal found there. It was renamed L. after Sir Wm Lethbridge, the first president of the Northwest Coal and Navigation Co. Ltd, who developed the coal-mines around L. Incorporated as a tn in 1891, and becoming a city in 1906, L. is known as the 'Irrigation Capital of Canada.' It is the Canadian Pacific Railway's divisional H.Q. for the L. div., and is served by Trans-Canadian and NW. airlines. L. is the centre of a large farming area and includes among its industries vegetable canning and freezing.

flour-milling, brewing, coal-mining, gas and oil production, and iron working. Pop. 28,300.

**Lethe** (Gk. 'oblivion'), one of the rivers of the lower world whose waters, when drunk by the dead, made them forget all evils past. L. first appears in literature in the 5th cent. BC, in Aristophanes' *Frogs*. Plato embodies the myth in his *Republic* (x), and Pausanias includes the drinking of the waters of L. in the Orphic initiatory rites (ix. 39. 8), cf. Dante's *Purgatorio* (xxviii and xxxiii). See J. E. Harrison, *Prolegomena to the Study of Greek Religion*. 1908.

**Lethington, Lord**, see Maitland, Sir Richard.

**Leti Islands**, see Moluccas.

**Leto** (Rom. *Latona*), daughter of Coeus the Titan and Phoebe, beloved by Zeus and by him the mother of Apollo and Artemis. Her worship was linked with that of her children, particularly at Argos and Delos.

**Le Touquet**, see Touquet-Paris-Plage, LE.

**Letter of Credit**, see CREDIT, LETTER OF. **Letter of Marque**, licence or commission granted by the gov. to a private person to fit out an armed ship or privateer to capture the enemy's ships and merchandise in time of war, or in reprisal for damage done. Privateering was abolished by the declaration of Paris in 1856, so that the granting of L.s of M. has fallen into disuse. See also PRIVATEERS. See H. Wheaton, *International Law* (4th ed.), 1904, and W. E. Hall, *International Law* (8th ed.), 1924.

**Letter-wood**, name given to the heart-wood of *Brosimum Aubletii*, a species of Moraceae found in Trinidad. It is chiefly used as a veneer.

**Lettering**. The hist. of European L. is broadly a hist. of modifications due to the various means of reproducing it in different ages. The classic Rom. alphabet, whose form was standardised by about the 1st cent. AD, was the archetype of all later styles, and owed its main characteristics to the fact that it was incised in stone. Later the scribe who wrote with a pen on vellum was not consciously devising new forms, but doing his best to imitate earlier models. He worked on a smooth, easy surface and the capitals tended to become rounded, and at the same time he narrowed the proportions to save space. Since the 16th cent. the exigencies of type design have influenced L. so that, for example, swash characteristics tend to be eliminated.

The following is a brief hist. of the development of L. *Roman capitals*, of which the best known example is the inscription on Trajan's column, were the models for what are called *square capitals*. These were formal pen-made letters and were in use until the beginning of the 6th cent. at the same time as the freer form of *rustic capitals*. By the 4th cent. *uncials* were developed, a rounder hand more characteristic of the pen and quicker to write. Their evolution to *half-uncials* at about the beginning of the 6th cent. marked the first appearance of minuscules

proper with 'ascenders' and 'descenders.' This hand branched out into different families, the Irish half-uncial becoming one of the most perfect forms. The revision of liturgical books instituted by Charlemagne in the 8th cent. brought about a revival of good penmanship, which had declined outside England and Ireland. The creation of the hand now known as the Caroline Minuscule by Alcuin at the monastery at Tours had a widespread influence throughout all Europe, except Germany, and it was to become the prototype of our present-day 'Rom.' alphabet. However, by the 12th cent. the impulse towards speed of writing and the necessity to save space resulted in a gradual compression and increasing angularity to form the characteristic Gothic style. Fortunately the Renaissance saw the revival of the Caroline Minuscule in Italy, and it was this hand which the first printers followed when cutting their types. The rapid spread of the invention of printing saw the gradual decline of the art of L., and the monastic *scriptorium* was no longer the home of bookmaking. Therefore the letter-forms found in 15th- and 16th-cent. MSS. have acquired a permanence due to the conservative character of type designs. At the turn of the present cent., which saw a reversion to earlier forms of craftsmanship in various fields, there was a revival of good penmanship associated with the names of Wm Morris, Edward Johnston, Eric Gill, and others. In the present day the wood-engraved L. by Reynolds Stone should be mentioned, and the further revival which has extended to the reform of handwriting in general and is represented notably by Alfred Fairbank. Side by side with this revival have come the enormous demands of commercial advertising for a bewildering variety of styles which, while of a high technical competence, are of very varied artistic merit. See also ILLUMINATION OF MANUSCRIPTS and TYPE AND TYPEFOUNDING. See E. Johnston, *Writing and Illuminating and Lettering*, 1906; E. Maunde-Thompson, *Introduction to Greek and Latin Palaeography*, 1912; Sir A. Heal, *English Writing Masters, 1570-1800*, 1931; *Lettering of Today*, Studio, 1937. See also PALAEOGRAPHY and WRITING.

**Letterkenny**, mkt tn of co. Donegal, Rep. of Ireland, 15 m. NW. of Lifford. Industries include hosiery, confectionery, mineral waters, iron-founding, milling, and bacon-curing. Pop. 4300.

**Letterpress Printing**, see PRINTING.

**Letters**, branch of literature which is but little studied, although one of the most delightful forms. A good letter requires to be natural, easy, and well expressed, suited to the nature and requirements of the person addressed. Among the L. of literature those of Mme de Sévigné occupy one of the foremost places. Among the most famous L. in Eng. literature the first in date are the *Paston Letters*, written between various members of the Paston family (afterwards Earls of Yarmouth) between the years 1422 and 1509, and first

pub. in 1823. These, not being meant for pub., are frank and natural, and provide an excellent picture of the times in which they were written. The epistolary form has often been used for didactic purposes as the epistles of St Paul and the early Christian teachers, and for political purposes, as in the *Letters of Junius*, 1769-72. Other famous collections are *Lord Chesterfield's Letters to his Son*, 1774-1787; Sir Walter Scott's *Paul's Letters to his Kinsfolk*, 1815, and *Letters of Malachi Malagrowth*, 1826, and in more recent times the *Vallima Letters*, 1895, of Robert Louis Stevenson. Swift's *Journal to Stella*, 1768, is more in the nature of a diary, but his *Drapier's Letters*, 1724, are a masterpiece of literary invective. Other famous letter-writers are Cicero, Seneca, Erasmus, Horace Walpole, Pope, Charles Lamb, Mme de Maintenon, Cowper, Jane Welsh Carlyle, and Byron. See also EPISTLE. See C. E. Vulliamy, *English Letter Writers*, 1945.

**Letters, or Signs**, see ALPHABET; NUMERALS; PHONETICS.

**Letters Missive**, letters from the sovereign conveying permission or command to some particular person, thus differing from 'letters patent,' which are addressed to the public. They are used generally for the nomination of a bishop, and are sent to the dean and chapter with the *congé d'lire* (q.v.).

**Letters of Attorney**, see POWER OF ATTORNEY.

**Letters Patent**, see PATENTS.

**Lettow-Vorbeck**, Paul Emil von (1870- ), Ger. general, b. Saarbrücken, in the Saar, eldest child of Gen. Paul Karl von L.-V. Graduating at Berlin Univ. he was sent out as colonel to Ger. E. Africa in Jan. 1914 to command the colonial troops. During the war (see AFRICA, GERMAN EAST, FIRST WORLD WAR, CAMPAIGN IN) he showed the highest ability, and only surrendered on being informed of the armistice, at Chambezi, 14 Nov. 1918. His *Reminiscences of East Africa* appeared in English in 1920.

**Lettres de Cachet** (*lettres closes*) were blank 'letters' signed and sealed by the King of France (from about the 14th cent.) and issued to governors of prisons. The insertion of a person's name therein was all that was necessary to secure commitment to the Bastille or another prison. (Meetings of estates and other bodies were called by L. de C. also.) They were abolished in 1789, though Napoleon used them for a short time.

**Lettres Portugaises**, see ALCOFORADO, MARIANA.

**Letts**, see LATVIA.

**Lettuce**, *Lactuca sativa*, valuable salad plant which can be grown all the year round. The cabbage L. is low and cabbage-like, the cos L. is more crisp, erect, and compact, but these types are widely varied. L. is rich in vitamins (q.v.).

**Letzeburg**, see LUXEMBOURG.

**Leucadia**, see LEUKAS.

**Leucase**, see LOCHES.

**Leucæmia**, see LEUCOCYTHAEMIA.

**Leuchars**, vil. and par. of Fifeshire, Scotland, 6 m. NW. of St Andrews, noted for its R.A.F. airfield. It has a church dating from the 12th cent. with a Norman apse and chancel, and a 15th-cent. castle. Pop. 3000.

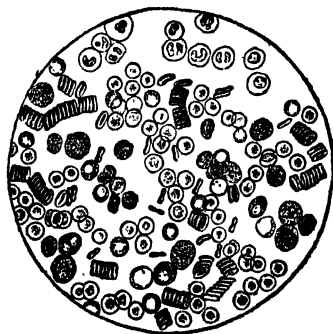
**Leucine**, or Aminoisocaproic Acid,  $(CH_3)_2CH \cdot CH_2 \cdot CH(NH_2) \cdot COOH$ , substance found widely distributed in the animal juices, particularly in the pancreas. It is produced by the putrefaction of proteins, and may be prepared from proteins such as casein by hydrolysis.

**Leucippus** (fl. 6th cent. BC), Gk philosopher, contemporary of Zeno and Anaxagoras, and the founder of the Atomistic theory afterwards developed by Democritus (q.v.).

**Leucite**, rock-forming mineral, consisting of potassium and aluminium metasilicate,  $KAl(SiO_3)_2$ . The crystals often contain such minerals as olivine and augite, as well as other impurities. L. rocks are found widely distributed throughout the globe, especially in the form of lavas near Vesuvius and Rome. They are usually rocks which contain felspar but no quartz.

**Leucocytes**, see under LEUCOCYTOSIS and BLOOD.

**Leucocythaemia**, or Leucaemia, acute or chronic progressive disease of the leucocyte-forming tissues. It is diagnosed by the presence of a large number of immature leucocytes in the blood and in the bone-marrow, by the invasion of other tissues by these cells, by the presence of anaemia, and by the occurrence of haemorrhages into the skin and mucous



BLOOD FILM SHOWING INCREASE IN WHITE CORPUSCLES  
Magnified 300 times.

membranes (see EPISTAXIS). *Lymphatic L.* is a type of L. characterised by an excessive production of leucocytes of the lymphatic type, together with enlargement of the lymphatic glands and the spleen. *Myeloid L.* is a L. in which there is proliferation of the myeloid leucocytes and enlargement of the spleen. *Monocytic L.*



is a L. in which there is proliferation of the monoblastic leucocytes. Treatment of these malignant conditions of the blood is unsatisfactory. Application of X-rays to the spleen and the long bones often retards the progress of the disease. Removal of the spleen is also helpful in some cases. Recently results from treatment with the group of chemical substances known as the nitrogen mustards has been encouraging in certain cases. Cortisone treatment has also had some success, but at present there is no specific cure. See BLOOD.

**Leucocytosis**, increase in the number of white corpuscles above the average number contained in the blood (q.v.). The white corpuscles, or leucocytes, act as destroyers of microbes that may have attacked the tissues. In normal health the number of leucocytes is from 5000 to 10,000 per cubic millimetre. There are 5 varieties: the neutrophil cell, derived from the bone-marrow and constituting 70 per cent of the total number of white corpuscles; the eosinophil cell, derived from bone-marrow, and forming 2 per cent of the whole; the lymphocyte, derived from the lymphoid tissue, and forming above 20 per cent of the whole; the monocyte, probably a later development of the lymphocyte, and forming 4 per cent of the whole; and the basophil, a cell rarely found in the blood of adults. The functions of the different varieties vary to a certain extent; they probably have varying capacities for attacking the different pathogenic organisms. L. is usually associated with an increase in the number of polymorphonuclear cells, although there are allied conditions in which the lymphocytes or the eosinophil cells may be increased above the average. The neutrophils increase during the process of digestion, in pregnancy, and when tissue is breaking down as a result of trauma or infection. The eosinophils increase in a variety of conditions in which foreign proteins enter the body, as in the allergic diseases (asthma, hay-fever) and in some parasitic diseases. Lymphocytes are involved in the production of antibodies. They increase in exercise and in diseases such as whooping-cough, glandular fever, many virus diseases, and in lymphatic leucæmia. An increase in lymphocytes is known as lymphocytosis and an increase of eosinophils as eosinophilia. As L. does not occur in such infective diseases as influenza, measles, malaria, and typhoid fever, it is possible to base a differential diagnosis on the extent of L. The number of leucocytes in many cases bears a relation to the defensive power of the blood against bacillary invasion, and a sudden fall in the quantity of leucocytes is a sign of danger in many diseases. When the number becomes excessive the condition is called leucocythæmia (q.v.) or leucæmia. The opposite condition to L., that is, where there is marked absence of leucocytes, is called leucopenia.

**Leucojum**, genus of central European and Mediterranean bulbous plants, family

Amaryllidaceæ, about 10 species, commonly known as Snowflake: *L. aestivum*, *L. autumnale*, *L. hiemale*, and *L. vernum* are the summer, autumn, winter, and spring Snowflakes, with green-marked snowdrop-like flowers.

**Leucol**, name formerly applied to *quinoline* or its isomer, *isoquinoline* ( $C_9H_7N$ ). Both are obtained in the distillation of coal-tar, and occur in the fraction which comes over between  $236^\circ C.$  and  $243^\circ C.$  Isoquinoline is separated by converting the mixed bases into the acid sulphates and subsequently decomposing the sulphate of isoquinoline with caustic solution.

**Leucoma**, opacity of the cornea, or anterior transparent portion of the eye. To outward appearance a white spot is presented, bearing a certain likeness to ground glass. According to the position and extent of this opaque area a certain amount of disturbance of vision is occasioned. The condition is caused by inflammation resulting from injury or infection from the conjunctiva. If the inflammation occurs below the epithelial layer of the cornea a loss of tissue takes place, and the place of the destroyed tissue is taken by opaque connective tissue. After the actual inflammation has ceased the opacity may gradually decrease, but in many cases it persists and threatens to become permanent. If the lens and retina are undamaged it is sometimes possible to remove the L. and to replace it with a graft of transparent cornea obtained from another person. L. is to be distinguished from fatty degeneration of the margin of the cornea which causes in old people a white opacity in that region.

**Leucotomy**, see INSANITY (TREATMENT).

**Leuctra**, vil. in Boeotia, anc. Greece, 6 m. from Thebes, famous for the victory gained in its neighbourhood by the Thebans, under Epaminondas, over the Spartans (371 BC).

**Leuk** (Fr. *Loèche-la-Ville*), summer resort of Switzerland in the canton of the Valais, on the r. b. of the Rhône, 15½ m. E. of Sion. At Leukerbad (*Loèche-les-Bains*), about 10 m. N. of the tn, at an altitude of 4629 ft. are hot, saline, chalybeate, and sulphurous springs, 22 in number. L. has sev. times been destroyed by avalanches, from which it is now protected by a strong embankment.

**Leukas**, or **Leucadia**, name of one of the Ionian Is., also called *Santa Maura*, lying off the coast of Acarnania, 50 m. SE. of Corfu. It is about 20 m. long, with a greatest breadth of 8 m., and has an area of 113 sq. m. The surface rises in rugged limestone heights, from the chalky appearance of which the is. takes its name meaning 'Whiteland.' The bold promontory (Cape Ducato) at the S. end of the is. rises to 2000 ft. and is the legendary scene of 'Sappho's Leap' and the death of Artemisia, Queen of Halicarnassus. The chief products are olive oil, currants, and wine. The cap. *Amaxiki*, or *L.*, lies at the NE. end. The land was colonised in the 7th cent. BC by the Corinthians, who made it an is. by cutting a canal through

the isthmus which joined it to the mainland. It has been suggested that L. may be Homer's Ithaca. Pop. 28,000.

Leuthen, *see* LUTYNIA.

Leutholf, Hiob, *see* LUDOLFUS, JOB.

Leutschau, *see* LEVOČA.

Leutze, Emanuel (1816-88), Ger.-Amer. painter, noted for his historical pictures, b. Gmünd, Württemberg. From 1841-59 he studied art at Düsseldorf and his best-known work, 'Washington crossing the Delaware,' is in the Metropolitan Museum, New York.

Leuven, *see* LOUVAIN.

Leuwenhoek, *see* LEEUWENHOEK.

Leuzinite, mineral, classed by some geologists as a variety of halloysite. It is a hydrous silicate of alumina, and is opaline and translucent.

Levallois-Perret, Fr. tn in the dept of Seine, a NW. suburb of Paris. It is a working-class, industrial dist., and has chemical, electrical, and automobile manufs. Maurice Ravel (q.v.) is buried here. Pop. 62,800.

Levant (from the It. *il levante*, the E.), originally applied as a general name for the E., meaning the coast-lands of the Mediterranean from Greece to Egypt, but now generally restricted to the Mediterranean coast-lands of Asia Minor and Syria (qq.v.). *See* J. Hart, *A Levantine Log-Book*, 1905, and E. Kirk, *A Short History of the Middle East*, 1948.

Levant Company, Eng. company which traded with the L. from about 1592 to 1825. It was estab. under a charter of 1581 which gave it a monopoly of the trade with Constantinople and the neighbourhood. It had branches at Aleppo and Smyrna. It flourished for many years, though its trade was seriously interfered with by pirates. Most of its records are in the Public Record Office, London.

Levant et Couchant, legal term used when a landlord sues the owner of cattle which have been trespassing on his land for not less than 24 hours, that is, long enough to lie down and get up to feed (*couchant et levant*). The term is also used for the right of a cattle-owner to pasture (*L. et C.*, i.e. by day and by night) his cattle on common pasturage.

Levanter, strong easterly wind prevalent in the W. end of the Mediterranean and off the N. African coast during the whole of the summer months.

Levanzo, *see* AEGADIAN ISLANDS.

Leves (Fr. *lever*, to rise): 1. Morning ceremonial visit to the sovereign of such gentlemen as have the right of entry. The name arises from the fact that these visits were first inaugurated by the kings of France, who held these receptions in their dressing-rooms. A L. is distinguished from a 'drawing-room' or court in England, inasmuch as only gentlemen attend the former. Neither has been held since the Second World War.

2. Embankment built to prevent overflowing during floods. The most noteworthy system of L.s is that of the Mississippi, which covers about 1800 m. The L.s are controlled by the various

bordering states and by a Federal Mississippi R. Commission.

Levée en Masse, *see* LEVY.

Level, in automatic telephony, a row of selector contacts; in mining, a level road in the mine; in engineering, building, etc., an instrument for testing the horizontality of a surface, or for providing a horizontal line of sight. The spirit-level, often attached to a camera, is a round metal box with a domed glass cover like a watch glass, nearly filled with spirit. The small air bubble left always seeks the highest point under the glass, and if the tangent plane at the centre is parallel to the underside of the box, that will be horizontal when the bubble is at the centre. This is usually marked with an



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#### 12-IN. ENGINEER'S PRECISION LEVEL

etched circle. The L. used by builders, carpenters, etc., is a wooden frame like a thick ruler on edge, the lower edge usually lined with a brass strip. In the upper edge is mounted a slightly carved, closed glass tube, nearly filled with spirit, and so fixed that the tangent plane to the tube surface at the middle point is parallel to the underside of the frame. The bubble in the tube will be at the middle, marked with etched lines, when the underside of the frame is horizontal. A long bubble and a slight curvature give the greatest accuracy.

A U-tube filled with water makes a simple L. for sighting horizontally, as the water is always at the same level in the 2 upright branches. The shape and size of the connect-portion between the upright tubes are immaterial, but a long tube gives a more accurate sightline. In a surveyors' L. the sightline is the optical axis of a telescope which can turn around an axis perpendicular to the optical axis. The telescope carries a sensitive spirit-L. and rests on 3 screws by means of which it can be accurately set, so that its optical axis swings in a horizontal plane when the telescope is turned. A glass diaphragm in the focal plane carries 2 fine wires crossing one another in the optical axis. In the Y-form of L. the telescope rests in 2 grooves and can be reversed and also rotated round its optical axis. This form is obsolete, but arrangements for turning the telescope round its optical

axis are incorporated in sev. modern precision designs. See SURVEYING AND LEVELLING.

**Levellers**, ultra-republican political party in England during the Civil war. Powerful in the army during the early years of the Commonwealth, they advanced their extremist views on religious toleration and democratic gov. in numerous pamphlets, the most noteworthy being by their leader John Lilburne (q.v.). His *Agreement of the People* is a noteworthy essay in democracy, and foreshadows some later developments in Eng. gov. They were dissatisfied with Cromwell's increasing power, and in April 1649 caused an army mutiny, which was suppressed by Fairfax. The movement continued, mostly underground, throughout the Commonwealth, but lacked cohesion after 1649. See T. C. Pease, *The Leveller Movement*, 1916; G. P. Gooch, *English Democratic Ideas in the Seventeenth Century* (2nd ed.), 1927; A. S. P. Woodhouse (ed.), *Puritanism and Liberty*, 1938; W. Haller and G. Davies (eds.), *The Leveller Tracts, 1647-1653*, 1944; W. Schenk, *The Concern for Social Justice in the Puritan Revolution*, 1948.

**Levelling**, see SURVEYING AND LEVELLING.

**Levels**, North, Middle, and South, divs. of the Cambridgeshire (q.v.) fenslands, planned and executed by Cornelius Vermuyden, a Dutch engineer, in conjunction with the 4th Earl of Bedford, to drain the area and prepare it for pasture. The work was completed by 1653. See also BEDFORD LEVEL and FENS.

**Leven**, Earl of, see LESLIE, ALEXANDER. **Leven**, burgh at the mouth of the L., frith of Forth, Fifeshire, Scotland, 9 m. N.E. of Kirkcaldy. It is a summer resort with a sandy beach and fine golf-links. There are foundries and timber yards, and other industries are paper-making, golf club making, and flax-spinning. Pop. 9000.

**Leven**, Loch: 1. Lake in the co. of Kinross, Scotland, area 5½ sq. m., and 11 m. in circuit, drained by the L. R. It contains 7 is., on one of which, Castle Is., are the ruins of L. L. Castle in which Mary Queen of Scots was imprisoned (1567-8). A causeway just under water connects the is. with the W. bank. St Serf's, the largest is., contains the ruins of an old priory. The trout fisheries are famous.

2. Sea-loch forming part of the boundary between Argyllshire (S.) and Inverness-shire (N.), Scotland, between Ballachulish (q.v.) and Kinlochleven.

**Levenshulme**, dist. of Manchester (q.v.). **Lever**, Charles James (1806-72), novelist, b. Dublin of Eng. parents, his father being an architect. He was educ. privately and at Trinity College, Dublin, where he took a degree in medicine. He forsook medicine for literature when, in 1837, his first novel, *Harry Lorrequer*, appeared serially in the *Dublin University Magazine* and was immediately successful. He later became editor of the magazine, and gathered round him the Irish wits

and writers of the time. He is chiefly remembered for his rollicking tales of Irish life, such as *Jack Hinton*, 1834, *Charles O'Malley*, 1840, *Tom Burke Ours*, 1844, and *Arthur O'Leary*, 1844. In later life he lived on the Continent, was Brit. consul at Spezia, and d. while at Trieste. His *Life and Letters* were ed. by W. J. Fitzpatrick, 1879. See L. Stevenson, *Doctor Quicksilver*, 1939.

**Lever**, Sir William, see LEVERHULME.

**Lever**: 1. Great, dist. of the co. bor. of Bolton (q.v.).

2. Little, tn and urb. dist. of Lancs, England, 3 m. S.E. of Bolton, with cotton-mills, and bleaching, chemical, and plastics works. Pop. 4700.

**Lever**, rigid bar which turns about a point called the fulcrum. The parts of the bar on each side of the fulcrum are called the arms. The principle of the lever was estab. by Archimedes. By applying force at one point on the L. a weight is raised or resistance overcome at another point. There are 3 classes of L.s, according to the position of the fulcrum in regard to the power and weight: (1) Where the fulcrum is between the power and weight; to this class belong the crow-bar, a poker in the bars of a grate, the handle of a pump, the balance, etc. The bascules of the Tower Bridge are of this class, the visible portion representing an arm of the L. (2) Where the weight is in the middle; to this class belong a wheelbarrow, nutcrackers (a double L.), etc. (3) Where the power is in the middle; to this class belong the treadle of a lathe, a pair of tongs, etc. In a L. the power multiplied by its 'arm,' or distance from fulcrum, is equal to the weight multiplied by the arm. If the force applied to the L. is less than the resistance of the weight, the L. is said to work at a mechanical advantage, if vice versa, at a mechanical disadvantage. L.s of the first class may work at either an advantage or disadvantage, or the force may be exactly equal to the weight. L.s of the second class always work at an advantage, and those of the third class always at a disadvantage, though there is the 'advantage' in the last class that the object moved is moved through a greater distance than the power. In bent L.s the perpendicular distance from the fulcrum to the meeting-place of the lines of direction of the forces is taken for calculation. Compound L.s are those in which the short arm of one acts on the longer arm of another, as in drawbridges, testing-machines, etc. The 3 types of L.s above described abound in all mechanism, though very often in a disguised form.

**Leverhulme**, Sir William Hesketh Lever, 1st Viscount (1851-1925), founder of Port Sunlight, b. Bolton, Lancs, a son of a wholesale grocer of substance. L. extended his father's business to Wigan in 1877. When soapmakers tried to raise the wholesale price he was paying them for the soap he was wrapping and selling as 'Sunlight Soap,' he bought soap works at Warrington, engaged an experienced soapmaker (called Winsor), and devoted

himself to making, advertising, and marketing his own soap. He prospered so fast that he was able to found Port Sunlight (q.v.) on the Wirral peninsula in 1888. There he began what he called prosperity sharing, in lieu of profit sharing. The employee was housed on the estate at an uneconomically low rent and received payments in kind, and was thus bound to the interests of the firm of Lever Brothers (James Darcy L. was the brother in partnership). After many attempts L. entered Parliament in 1906 as Liberal member for Wirral. But he did not stand again, and ceased to be M.P. in 1910. He bought the lease of Stafford (now Lancaster) House in 1913 and presented it to the nation for the London Museum. Ennobled in 1917, he took the title of L. In 1918-20 he acquired the is. of Lewis-with-Harris and tried developments in Lewis that did not succeed; he yielded much of his property there to the inhab. See life by his son, the second Lord L., 1927; also Charles Wilson, *The History of Unilever*, 1954.

**Leverkusen**, Ger. tn in the Land of N. Rhine-Westphalia (q.v.), on the Rhine (q.v.), 5 m. N. of Cologne. It has important chemical, textile, and machinery industries. Pop. 70,000.

**Leverrier**, Urbain Jean Joseph (1811-1877), Fr. astronomer, b. St. Lô, Normandy. In 1846 he was admitted to the Academy of Sciences. His most notable work was the inference of the existence of the planet Neptune, and his calculation of the point at which it would become visible. It was discovered in the position by the Ger. astronomer Galle (see NEPTUNE). In 1854 he became director of the observatory of Paris.

**Levertin**, Oscar (1889-1908), Swedish poet and novelist, of Jewish descent. He became prof. at Stockholm Univ. in 1899; and as literary critic in the *Svenska Dagbladet* he exerted great influence on Swedish literature. His verse is often aesthetic rather than emotional in inspiration, as in *Legender och visor*, 1891, but in his later years he wrote some very moving poetry, especially the song cycle *Kung Salomo och Morolf*, 1905. His wide culture and knowledge is shown in his essays, as well as in his stories and novels *Rocconoveller*, 1899, and *Magistrarne i Österås*, 1900. His *Samlade Skrifter* was ed. in 24 vols., 1907-12. See W. Söderhjelm, *O. Levertin* (2 vols.), 1914-17, and F. Böök, *O. Levertin*, 1944.

**Leveson-Gower**, Francis, see ELLES-MERE, 1st EARL OF.

**Leveson-Gower**, George, see GRANVILLE, 2nd EARL OF.

**Leviathan**, name of a reptile that occurs 5 times in the O.T. (Ps. civ. 25-6, Ps. lxxiv. 14, Isa. xxvii. 1, Isa. li. 9, and Job xli where a description is given). In all cases but that in Ps. civ the term is usually explained as referring to the crocodile, and this animal being known to the Israelites chiefly from the crocodiles of the Nile, it was often used as the symbol of Egypt (Isa. li). Some have seen in L. and Behemoth legendary

creatures combined from various Egyptian and Babylonian myths.



BEHEMOTH AND LEVIATHAN

William Blake's conception in *Illustrations of the Book of Job*.

'Leviathan,' name of, at one time, one of the world's largest ships formerly called the *Vaderland*, and built in Germany in 1914. She was bought by U.S. Lines in 1922 and operated as *President Harding*, but proved uneconomical. In 1939 a Belgian company purchased her. As the *Ville de Bruges* she was sunk by a Ger. submarine in Feb. 1940. Her tonnage was 59,957; dimensions 907 × 100 × 58 ft (8 ft shorter than the Brit. *Majestic*, and if measured according to Brit. mercantile rules the tonnage would be 54,282, while that of the *Majestic*, if measured by Amer. rules, would be 61,206 instead of 56,621). Also the name of a Brit. light fleet carrier, launched in 1945, of 18,000 tons displacement and carrying 44 aircraft.

**Levico**, It. tn in Trentino-Alto Adige (q.v.), 10 m. SE. of Trento (q.v.). It is near the lake of L., and is frequented for its arsenical springs. Pop. (tn) 3800; (com.) 5550.

**Le Vigan**, see VIGAN, LE.

**Levin**, prin. tn of lower Manawatu dist., N. Is., New Zealand; situated on the W. coast, 59 m. N. of Wellington by rail. It is the centre of a flourishing dairy industry. The neighbouring Tararua ranges, numerous trout streams and rivers, and bathing beaches make L. a well-known sports centre. The Horowhenua College is the prin. educational institution. Pop. 6447.

**Levirate** (Lat. *levir*, brother-in-law), institution by which a widow is inherited by her deceased husband's successor, but her later children are legally those of her dead husband, not of her new pro-husband. It is found among ancient Hebrews and many African and other peoples to-day.

**Levis**, or Point Levi, city of Quebec, Canada, on the S. shore of the St. Lawrence. It has a ferry and a railroad

bridge to Quebec. It is fortified, has fine docks, great shipping trade, and considerable manufs., including iron, ship-building, and saw-mills. Pop. 13,500.

**Levison, Wilhelm** (1876-1947), Ger. historian, an outstanding authority on the hist. of NW. Europe, particularly of N. England, during the 7th and 8th cents. Prof. of medieval hist. at Bonn Univ., he was dismissed by the Nazis and came to England in 1933 to continue his studies at Durham Univ., of which he was elected honorary fellow in 1939. The Ford lectures delivered by him at Oxford Univ. in 1943 were pub. in 1946 with the title *England and the Continent of Europe in the Eighth Century*. A comprehensive selection from his works in German, French, and English was pub. in Düsseldorf in 1947, entitled *Aus Rheinischer und Fränkischer Frühzeit*.

**Levita, Elias** (1468-1549), rabbi, philologist, critic, and poet. He spent most of his life in Rome and Venice, and had a wide circle of friends there. His works are on the Psalms, Job, Proverbs, Amos, a Talmudic and Targumic dictionary, and a Heb. grammar. See life by J. Levi (Breslau, 1888).

**Levites**, descendants of Levi, son of Jacob and Leah, the tribe of Moses and Aaron. For the attack made on Shechem by Simeon and Levi, those 2 tribes were not given a portion of the ter. of Canaan, but scattered throughout the country. The hist. of the L. is complicated by the gradual restriction of priestly functions to the sons of Aaron and of sacrifice to a single sanctuary. Deuteronomy (x. 8 and xxi. 5) distinguishes the L. from the rest of the tribes for the bearing of the ark, for the ministry of Yahweh, and for the deciding of controversies. At the same time it enjoins that the Israelites should erect a single sanctuary on taking possession of Canaan. This, however, was not done till the time of Josias, to which date Deuteronomy (in its present form) belongs. In earlier times we find L. at least preferred to other tribesmen for priestly functions—cf. Judges xvii. It has been suggested (cf. Judges xviii. 30) that the L. were Mosaic priests of the numerous High Places, suppressed by Josiah, and compelled to take a subordinate role by the jealous Aaronite priests of the one surviving and lawful sanctuary at Jerusalem. See G. Buchanan Gray, *Sacrifice and Priesthood*.

**Leviticus**, the third book of the Pentateuch (q.v.), belongs almost entirely to the stratum known as P. It is concerned chiefly with legislation regarding the priestly functions. Chs. i-vii deal with the laws of sacrifice and with certain priestly regulations. Chs. viii-x deal with the consecration of priests, and chs. xi-xvi with the laws of purification and atonement. The section consisting of chs. xvii-xxvi is known as 'the Law of Holiness,' (cf. Ezek. xl-xlviii) and stands apart from the preceding chapters.

**Levkaa**, see LEUKAS.

**Levkosia, Leukosia**, see NICOOSIA.

**Levoča** (Ger. Leutschau; Magyar Lőcse),

Czechoslovak tn in the region of Kolice (q.v.). Formerly a royal free city of Hungary, it has a 13th-cent. church and a Renaissance tn hall. Pop. 9800.

**Levuka**, small port on Ovalau Is., Fiji (q.v.), site of the first white settlement and from 1874-82 cap. of the colony.

**Levy, Hermann Joachim** (1881-1949), Ger. economist, b. Berlin, became a naturalised Brit. subject, 1946. Son of a retired textile manufacturer, he was educ. at Munich Univ., where he took up the study of economics. After lecturing at Halle for some years he became a prof. at Heidelberg Univ. During the First World War he worked in the Ger. Admiralty, but after the war returned to economics, paying special attention to industrial cartelisation. In 1918 he became prof. at the Technische Hochschule, Berlin. Essentially a lover of peace, L.'s life in Germany became ever more difficult, and in 1935 he came to England, where he soon estab. himself as a leading economist in industrial assurance. His first pub. was *Large and Small Farms*, 1911; his next *Economic Liberalism*, 1913. His *Industrial Germany*, 1935, was an acute analysis of collectivism and monopoly as opposed to free competition, and in *The New Industrial System*, 1936, he surveyed the tendency in Britain towards large industrial units. *Industrial Insurance*, pub. in collaboration with Sir Arnold Wilson in 1937, attacked the companies and societies engaged in industrial insurance, advocating strongly the extension of National Health Insurance arrangements to cover death benefits, while in *National Health Insurance*, 1945, he proposed alternatives to the proposals of the Beveridge Report. In his *Retail Trade Associations*, 1942, and *The Shops of Britain*, 1948, he argued for state control of industrial combinations and retail trade associations. *Drink: an Economic and Social Study* was pub. posthumously in 1951 (ed. by R. P. Lynton).

**Levy** (Fr. *levée*, from *lever*; Lat. *levare*, to raise), collection of a body of men for compulsory military or other service in times of national emergency. The L. is usually restricted to a class, e.g. to men between certain ages, but in times of great danger a *levée en masse* may be enforced, when all able-bodied men are required to serve in person, for purposes of either defence or offence. In Brit. Middle E. protectorates the term is applied to local militia forces. The word L. is also used as a synonym for *raising* taxes.

**Levy-Bruhl, Lucien** (1857-1939), Fr. philosopher, b. Paris. Educ. at the Lycée Charlemagne and at the École Normale Supérieure, he became a lecturer at the latter institution and then at the Sorbonne (1899). He was later a prof. at the univ. of Paris. His works include *L'idée de responsabilité*, 1884, *L'Allemagne depuis Leibnitz*, 1890, *History of Modern Philosophy in France* (Eng. trans.), 1899, *La Philosophie d'Auguste Comte*, 1900, *Les Fonctions mentales dans*

les sociétés inférieures, 1910, *La Mentalité primitive*, 1921, *L'Âme primitive*, 1927, and *Le Surnaturel et la nature dans la mentalité primitive*, 1931.

Levy-Lawson, Sir Edward, and Sir Harry Lawson-Webster, see BURNHAM.

Lewanika (c. 1840-1916), paramount chief of the Barotse of N. Rhodesia from 1875 to 1916. His real name was Robosi, the 'escaped one,' because he was b. when his mother was fleeing from the Makololo; 'Lewanika' was merely an adopted name. He was of distinguished descent, being a grandson of Marambwa, a famous Barotse chief. He succeeded to, or rather usurped, a kingdom comprising some 20 large African tribes, to which the Portuguese governors of Angola to the N. of Barotseland had given the name Marotse-Mambunda. L. was in exile when, heading a revolution against his cousin King Sebeso, he obtained the throne and, finding that the cap. Sesheke was still a storm centre of rival factions, set up his seat of gov. at Lealui on the Zambezi in the N. Among the chief influences for good in his career as by far the most successful of Barotseland's rulers was the work of such Protestant missionaries as François Collard and Arnot. But L. was by nature a lover of the arts of peace and a social reformer, even though he was also a doughty tribal fighter and a fine hunter. In 1885 he was ousted from the throne through the treachery of Mathaha, a counsellor who had poisoned L.'s mind against his supporters and so forfeited their confidence. Mathaha now put Tatira, a youth, on the throne as a puppet king and wielded the chief power himself. But L. returned at the head of an army and, in a battle in which Mathaha and most of the chiefs on both sides were killed, regained his throne. He seems to have pardoned some of the rebels, but Tatira and a great many others, of both sexes, were put to death. His reforming zeal was shown in the abolition, by 1893, of trial by ordeal and witchcraft at his cap. Slavery, however, was only stamped out after L. had sued for and obtained Brit. protection. Realising that he would be always beset by enemies both at home and abroad, L. made a treaty with the Brit. representatives, but the first Brit. resident commissioner (Major—afterwards Sir—Robert Coryndon, a member of Rhodes's staff) did not arrive until 7 years later (1897). In 1902 L., accompanied by Col. Colin Harding, who had organised the Barotse police, visited England for the coronation of Edward VII. He was quick to appreciate the difference between those who only received him as a king and those who welcomed him as a friend. What unquestionably impressed him on this visit was to see 'what respect there was for God and His Law,' and though L. never actually declared himself a Christian he was by nature a devout man and allowed Litia, his son and successor, to be baptised as a Christian. L. and his people were intensely loyal to the allied cause in the First World War, but the strain of the time adversely affected

his declining health and he d. on 4 Feb. 1916, his burial being conducted with immense pomp, according to all the Barotse traditions. See H. Marshall Hole, *The Passing of the Black Kings*, 1932; Lt.-Col. C. Harding, *Far Bugles*, 1932; C. W. Mackintosh, *Lewanika*, 1942.

Lewes, George Henry (1817-79), author, b. London. He began to contribute to the *Edinburgh* and *Quarterly* reviews in 1840, and continued to do so for many years. He pub. a *Biographical History of Philosophy* in 1845-6, and in 1855 brought out his *Life of Goethe*, which became a standard authority on the subject both in England and in Germany. His *Physiology of Common Life* appeared in 1858-60 and *Problems of Life and Mind* in 1878. For a short time (1865-6) he was editor of the *Fortnightly Review*. In 1851 he met Mary Ann Evans, later famous under the pseudonym of 'George Eliot,' with whom he lived until his death. See A. T. Kitchell, *George Lewes and George Eliot*, 1934.

Lewes, municipal bor. and cap. of E. Sussex, England, situated on the navigable Ouse, 50 m. from London. It is a tn of great historical importance; here was fought the battle of L. (1264) when Simon de Montfort defeated Henry III. The ruins of the castle may be seen, including the Norman inner gate. Here also are the remains of the Cluniac priory (1078) and a 15th-cent. mansion, residence of Anne of Cleves. Barbican House possesses a fine archaeological museum, and there is a 16th-cent. grammar school. Near by is Glyndebourne (q.v.). Pop. 13,104.

Lewes, Miss of, see MONTFORT, SIMON DE.

Lewin, William C. J., see TERRISS.

Lewis, Alun (1915-44), poet, b. near Aberdare. He was educ. at Cowbridge Grammar School, the Univ. College of Wales, and Manchester Univ. He entered the army in 1940 and was commissioned in the S. Wales Borderers with which regiment he served in India and Burma. He was accidentally killed while in Burma in Mar. 1944. His austere sense of vocation as a writer and his disciplined style of writing marked him out as a poet of great promise, as shown by his first pub. vol. of poems, *Raiders' Dawn*, 1942. This was followed by *Ha! Ha! Among the Trumpets*, a vol. prepared by him and pub. posthumously in 1945 with an introduction by Robert Graves. L.'s poetry is most successful in its realistic and humane approach to life, tempered with a fine idealism, and formed with integrity and discipline. His sense of realism also found expression in a notable collection of short stories, *The Last Inspection*, 1943. A number of his letters from India were pub. in 1949, together with 6 short stories under the title *In the Green Tree*.

Lewis, Cecil Day (1904- ), poet, b. Ballintogher, Ireland, son of a clergyman; on the mother's side related to Goldsmith. The family moved to England, and L. was educ. at Sherborne and Wadham College,

Oxford, where he ed. the anthology *Oxford Poetry* in 1927. After working as a schoolmaster at Oxford, Helensburgh, and Cheltenham, in 1935 he abandoned teaching for writing. With Auden and Spender (qq.v.), who had been his contemporaries at Oxford, he formed a poetic group partly inspired by T. S. Eliot (q.v.), and voicing the current feeling of social discontent. His more important books of verse are *Collected Poems, 1929-33*, 1935, *Overtures to Death*, 1938, *Word Over All*, 1943, *An Italian Visit*, 1953, and *Pegasus*, 1957; he also trans. Virgil's *Georgics*, 1941, and *Aeneid*, 1952, into verse. His critical works include *A Hope for Poetry*, 1934, *Poetry for You*, 1945, *Enjoying Poetry*, 1952, and *The Grand Manner*, 1952. He wrote some novels, including *The Friendly Tree*, 1936, *Starting Point*, 1937, and *Child of Misfortune*, 1939, but is better known for the excellent detective stories that he pub. under the pen-name of Nicholas Blake. Among the best of these are *A Question of Proof*, 1935, *Malice in Wonderland*, 1940, and *The Case of the Abominable Snowman*, 1941. During the Second World War he was employed at the Ministry of Information, and from 1951 to 1955 he occupied the chair of poetry at Oxford. See D. Powell, *Descent from Parnassus*, 1934, and S. Spender, *World within World*, 1951.

**Lewis, Clive Staples** (1898- ), moralist and novelist, b. Belfast, son of a solicitor. Educ. at Malvern and Univ. College, Oxford, he served during the First World War with the Somerset Light Infantry. From 1925 to 1941 he was a fellow of Magdalen, then was appointed prof. of medieval and renaissance English at Cambridge. Critical works are *The Allegory of Love*, 1936, and *English Literature in the Sixteenth Century*, 1954. He also wrote religious and ethical works, which include *The Pilgrim's Regress*, 1933, *The Problem of Pain*, 1940, *The Screwtape Letters*, 1942, *Christian Behaviour*, 1943, *Beyond Personality*, 1944, and *Mere Christianity*, 1952. There is a strong religious tone also in his scientific fiction, which includes *Out of the Silent Planet*, 1938, an account of an imaginary voyage to Mars, and *Perelandra*, 1943, a similar romance about Venus. He also wrote a number of delightful children's books, including *The Lion, the Witch, and the Wardrobe*, 1950, *Prince Caspian*, 1951, *The Voyage of the Dawn Treader*, 1952, and *The Silver Chair*, 1953. His long poem *Dymor*, 1926, was pub. under the name Clive Hamilton.

**Lewis, Dominic Bevan Wyndham** (1894- ), journalist and biographer, b. Wales. As a young man he was intended for the law, but reading for the Bar was interrupted by the First World War. He served with the infantry in France and Macedonia, and was invalided out in 1918. He decided to enter journalism, and in 1919 joined the staff of the *Daily Express*, his contributions to which under the name 'Beachcomber,' made his reputation as a satirically witty writer and deserving a place in the line of great Eng. humorists.

He left the *Daily Express* in 1924 and wrote for the *Daily Mail*, the *Sunday Referee*, and other papers. In later years he also contributed to the *News Chronicle* under the pseudonym of 'Timothy Shy.' In addition to his humorous writings, L. is a Fr. scholar and historian, having pub. studies of François Villon, 1928, and Ronsard, 1944, also biographies of Louis XI of France (*King Spider*, 1930) and of Charles V (*Emperor of the West*, 1932). His essays and humorous writings have been collected in a number of vols., including *A London Farrago*, 1922, *At the Sign of the Blue Moon*, 1924, *At the Blue Moon Again*, 1925, and *On Straw and Other Conceits*, 1927. He trans. Barbey d'Aureville's *Anatomy of Dandyism* in 1928, and in collaboration with Charles Lee compiled an anthology of bad verse, entitled *The Stuffed Owl*, 1930.

**Lewis, Sir George Cornwall**, 2nd Baronet (1806-63), statesman, b. London, and educ. at Eton and Christ Church, Oxford. He entered Parliament as a Liberal in 1847. From 1855 to 1858 he was chancellor of the exchequer; home secretary, 1859-61, and then secretary of state for war, 1861-3. He was editor of the *Edinburgh Review*, 1852-5, and author of many books, the most valuable of which is *Essays on the Administration of Great Britain from 1783 to 1830*, 1864. His *Letters* were ed. in 1870 by his brother Gilbert, who succeeded him in the baronetcy.

**Lewis, John Llewellyn** (1880- ), Amer. labour leader, b. Lucas co., Iowa, and educ. at public schools. Between 1909 and 1917 he was active in promoting the United Mine Workers of America and the Amer. Federation of Labor, and was elected president of the United Mine Workers' Union in 1920. Founder and leader of the Congress of Industrial Organisations, he organised mass unions in place of the more restricted 'craft unions' of the older system. In the presidential election of 1941 he urged Amer. labour to support Willkie, declaring his intention of resigning if Roosevelt were re-elected, his assumption being that Roosevelt was leading the country into war. The result was that he split the ranks of the C.I.O. and ensured Roosevelt's return in triumph. He accordingly resigned from the presidency of the C.I.O., but continued to exercise a strong influence on Amer. labour as president of the Mine Workers' Union. See biographies by J. A. Wechsler, 1944, and Saul Alinsky, 1949.

**Lewis, Matthew Gregory** (1775-1818), author, b. London. Educ. at Westminster and Oxford, he was attaché to the Brit. embassy at The Hague in 1794, and in the following year pub. *The Monk*, which attracted much attention and made its author famous. He wrote plays and poems, and his *Castle Spectre* ran at Drury Lane for 60 nights. His *Life and Correspondence* was pub. in 1839.

**Lewis, Meriwether** (1774-1809), Amer. explorer, b. in Virginia, was the first (with

Wm Clark) to explore the Amer. continent from St Louis to the mouth of the Columbia R. in the Pacific (1894-6). See O. D. Wheeler, *The Trail of Lewis and Clark*, 1904.

**Lewis, Percy Wyndham** (1884-1957), painter and author, b. Nova Scotia of Brit. parents; educ. at Rugby and in the Slade School. As an artist he achieved fame as leader of a school of abstract painting known as Vorticism, and founded and ed. a periodical in support of the movement (*Blast*, 1914-15). His work is represented in the Tate Gallery and the Victoria and Albert Museum, London, and in other public galleries, a comprehensive exhibition being held at the Tate Gallery in 1956. Notable portraits are those of Edith Sitwell (Tate Gallery) and T. S. Elliot (Durban). A prolific writer, he produced satirical and grotesque novels among which are *Tarr*, 1918, and *The Apes of God*, 1930, the latter a huge work in which a personal exasperation becomes magnified. He developed an authoritarian philosophy in *The Art of Being Ruled*, 1926, and produced many other polemic and critical works, full of intellectual vigour and discontent. His sight failed in the last 5 years of his life, but he continued to write, notable works being *The Demon of Progress in the Arts*, 1954, an attack on extremism, and the completion of a trilogy, *The Human Age*, which had begun with *The Childermass*, 1928, the sequels, *Monstre Gai* and *Malign Fiesta*, both 1955, being commissioned by the B.B.C. (a broadcast version was produced in the same year). Autobiographical works were *Blasting and Bombardiering*, 1937, and *Rude Assignment*, 1950. Other pubs. include *Paleface*, 1929, *The Diabolical Principle*, 1931, *Snooty Baronet*, 1932, *Men Without Art*, 1934, *The Revenge for Love*, 1937, *Count Your Dead*, 1937, *The Mysterious Mr Bull*, 1938, and *The Hitler Cult*, 1939. See G. Wagner, *Wyndham Lewis: Portrait of the Artist as the Enemy*, 1957.

**Lewis, Sinclair** (1885-1951), Amer. novelist, b. Sauk Centre, Minnesota. Graduating from Yale Univ. in 1907, he worked for a time as a newspaper reporter and then in various editorial capacities with some Amer. book-publishing firms. In 1914 appeared his first novel, *Our Mr Wrenn*, followed by a number of others, none of which had any marked success. But in 1920 there appeared his *Main Street*, which rapidly became a 'best seller.' It was recognised that here was a new force in Amer. literature, a satirist of the first order, who saw his countrymen with clear eyes. The book brought in more money to its author than he ever dreamed possible, and from then on he felt free to do the work he was all along assured was in him. In 1922 appeared his *Babbitt*, which gave Americans a new term, one with which to designate the self-satisfied Rotarian type of Amer. business man. *Martin Arrowsmith*, a picture of the medical profession, appeared in 1924. In 1927 appeared his *Elmer Gantry*, a savage satirical picture of the

professional religious revivalists. *Dodsworth*, 1929, was the fruit of his numerous trips to Europe. L.'s position in literature was consolidated when in 1930 he was the first American to be awarded the Nobel prize for literature. His other novels include *Ann Vickers*, 1933, *It Can't Happen Here*, 1935, *The Prodigal Parents*, 1938, *Bethel Merriday*, 1940, *Gideon Planish*, 1943, *Cass Timberlake*, 1945, *Kingsblood Royal*, 1948, *The God-Seeker*, 1949, and *World So Wide*, 1951. *The Man from Main Street*, 1954, is a collection of his essays, and his *Letters* were pub. in 1952. See study by O. van Doren, 1933; M. Geisman, *Last of the Provincials*, 1947.

**Lewis & Co., John**, see JOHN LEWIS PARTNERSHIP.

**Lewis, or Lewis-with-Harris**, northernmost and largest is. of the Outer Hebrides, off the W. coast of Scotland, from which it is separated by the Minch, 30 m. wide. Length, N. to S., 60 m.; greatest breadth, 30 m.; area, 770 sq. m. Lochs Reasort and Seaforth divide it into L. on the N. and Harris on the S. The coast is much indented, having Loch Erlisort and Broad Bay on the E. and Loch Roag on the W., while on the N. the headland of the Butt of L. rises to 80 ft. Much of the surface is rugged, and 2 peaks, Mealasval and Ben More, reach 1750 ft. but large tracts are swampy, and there is much peat and another forest remains. There are many Druidic remains and ruined forts. Chief industries are crofting, sheep farming, fishing, and the hand weaving of Harris tweed. Barley, oats, and potatoes are grown. Stornoway is the only tn. Sir James Matheson owned the is. from 1844 to 1918, when Lord Leverhulme bought it with the idea of developing the is. industries, but the scheme was unsuccessful. Pop. 23,700.

**Lewis Gun**, light, portable gun introduced into the Brit. Army in the First World War and used until the Second World War as an infantry weapon. Like the Hotchkiss gun (q.v.) it is an automatic firearm, and continuity of fire is its primary function. Continuity of fire is controlled by attaching the striker to some member of the moving parts, the completion of whose forward movement is properly timed. The bullet is fired by the striker passing through a hole in the face of the bolt. The gun is fed by a circular magazine fixed horizontally over the mechanism, and holding 47 rounds. The weight of the gun (without mounting) is 26 lb., about the same as that of the Hotchkiss gun. The wear on the barrel through over-heating, and the rush of gas which forces the bullet up the barrel, is great, and a cooling system is provided by means of flanges radiating from the barrel and encased in a tubular cover. The Vickers .303-in. machine-gun has now replaced the L. G. in the Brit. Army.

**Lewis River** (U.S.A.), see SNAKE RIVER. **Lewisham** (meaning the ham or home of a person called Liofa), parl. and metro-politan bor. of SE. London. With Camberwell, on its W. side, it is one of the 2



bors. of S. London with no riv. frontage. The bor. comprises the old vils. of Lee, Bellingham, Sydenham (qq.v.), Catford, Rushey Green, Ladywell, Forest Hill, Southend, and other settlements, its 2 pars. being Lee and L. The manor of L. was granted in 918 by a daughter of Alfred the Great to the abbey of St Peter at Ghent. It is a large bor. of many residential areas, sev. open spaces, and a few industries. It returns 3 members to Parliament. Area 7015 ac.; pop. 224,200. See also BLACKHEATH.

**Lewisian**, geological name of group of

of these 2 periods are developed in Scandinavia where they form part of the Sveco-Fennid chain with which part of the L. may now be equated. See also PRE-CAMBRIAN.

**Lewisite**, 2-chlorovinyl dichloroarsine ( $\text{Cl}_2\text{CH} : \text{CH} \cdot \text{AsCl}_2$ ), a powerfully vesicant oily liquid suggested as a possible military poison gas. It can be prepared by passing acetylene through a mixture of anhydrous arsenic trichloride and aluminium chloride.

**Lewiston**: 1. City of Androscoggin co., Maine, U.S.A., on Androscoggin R.,



*Valentine & Sons Ltd, Dundee*

**LEWIS: GRABIR AND LOCH ODHAIRN**

Pre-Cambrian gneisses, schists, granitic and altered basic rocks which are exposed in NW. Scotland and in the Outer Hebrides, especially in Lewis, from whence the name. Parts of the L. are 1200 million years old, but older rocks are probably present. The L. includes a few metamorphic rocks which were once demonstrably sedimentary; these are now quartzites, schists, and marbles and include the Three marble. Other sedimentary rocks may have been present but are now altered beyond recognition by metamorphism and migmatization. In its present state the L. forms a very variable complex of rocks which included both basic and acid types, though true granites, as opposed to granitic gneisses, are rare. Two periods of regional metamorphism have been detected and may date from 2 distinct orogenies within the Pre-Cambrian. Rocks formed in the later

opposite Auburn. It is the second largest city in Maine. The riv. here falls about 60 ft. affording water power used in the manuf. of cottons, woollens, shoes, wood products, bricks, and metal products; there are also printing plants. L. is the seat of Bates College. Pop. 40,900.

**Lex Dei**, see **COLLATIO**.

**Lex Loc**, phrase used in private international law on the extraterritorial application of legal rights (see **COMITY**) to denote the principle on which the law of one country is applied to decide cases tried by the tribunals of another country. *L. L. rei sitae* denotes the principle on which questions relating to land are decided by the real property law of the place where the property is situate; *L. L. actus* denotes the law of the place where a legal transaction took place. The prin. species of the *L. L. actus* are the *L. L. contractus*, or the law of the place where

a contract was made, or its terms finally agreed upon; *L. L. delicti commissi*, or law of the place where a civil injury was committed; *L. L. solutionis*, or law of the place where a contract was to be performed. The abbreviated form, *L. L.*, is generally appropriated to the *L. L. contractus*. In the absence of express terms to the contrary, it is presumed a contract is to be performed at the place where made, and that its nature, the interpretation of its terms, and its validity generally are to be determined by the laws of that place; and where, therefore, a place of performance is specified the law of that place will govern the interpretation and validity of the contract and not the *lex contractus*; and where the law of the place of performance and that of the place where the contract was entered into differ, it is presumed that the parties intended the contract to be governed by the principles of the former. In the case of actions in Eng. courts on bills of exchange, the net results of the Bills of Exchange Act, 1882, is that the law of the place where an act is to be done is to govern the performance of that act, e.g. in the case of a Bill drawn in France and accepted in England and payable in Germany, Fr. law governs the drawing, Eng. the acceptance, and Ger. the payment.

**Lex Talionis**, law of retaliation, which finds expression in the Mosaic dispensation of an eye for an eye, etc. Something of the principle is to be found underlying Bentham's celebrated *Theory of Punishment*. Whether punishment in kind does most adequately fit the crime depends on whether one's individual theory of punishment is vindictive, retributive, deterrent, morbid, or otherwise. L. T. in modern international law includes (a) *amicable retaliation* or retaliatory acts corresponding to legal but discourteous acts of another nation (called also *retorsion de droit*), and (b) *vindictive retaliation*, or *retorsio facti*, i.e. belligerent acts in kind. See also **MAIM**.

**Lexicon**, see **DICTIONARY**.

**Lexington**, 1. Co. seat of Fayette co., Kentucky, U.S.A., 75 m. SE. of Louisville. In the heart of the Bluegrass region, it is the third largest city in the state. It is the U.S. centre for the raising of thoroughbred horses, and an important market for looseleaf burley tobacco. It is a rail junction and a shipping centre for E. Kentucky. There are meat-packing, coffee-roasting, tobacco-processing, and printing plants, and manufs. of clothing, limestone products, cutting tools, sheet-metal products, furniture, toys, electrical equipment, and auto parts; there is also flour-milling. The tn contains Kentucky Univ. Pop. 55,534.

2. Tn of Middlesex co., Massachusetts, U.S.A., 11 m. NW. of Boston. L. is famous as the place in which the first shot of the Amer. revolution was fired. Printing and publishing are carried on, and there is an agric. industry (truck farming and nursery produce). Pop. 17,350.

**Ley, Robert** (1890-1945), Ger. Nazi politician, b. Niederbreidenbach in Hesse. He took a degree in chem. at the Univ. of Bonn, and served in the First World War, being taken prisoner in France. He joined the National Socialist party in 1924 and represented it in the Reichstag in 1932. When Hitler came to power L. was given the task of abolishing the trade unions and setting up in their place a labour organisation with himself at the head. In this capacity he was responsible for directing the labour needs of the Ger. war machine both before and during the Second World War. On 16 May 1945 he was captured by Amer. troops and eventually tried at Nuremberg as a war criminal. During the trial, however, he managed to commit suicide by hanging himself. He was notorious for his violent anti-Semitism.

**Ley Farming**, practice of growing grass as a crop and as pasture from selected seeds mixtures in a rotation, alternating with tillage crops. Earliest work on seeds mixtures was done in the 1870's. L. F. advanced in Great Britain under such pioneers as Prof. Gilchrist and Robert Elliot (Clifton Park). It received big impetus from advocacy and breeding of new and leafy strains of grasses and clovers bred at the Welsh Plant Breeding Station, Aberystwyth, by Sir R. George Stapledon; it became a key factor in food production (milk and meat) during the Second World War, and is a permanent feature of modern post-war farming. The ley is valuable to redeem marginal or poor land, to refresh worn-out permanent pastures, to provide more nutritious and heavier crops for cutting or grazing, and to leave the soil in better fertility for the taking of a tillage crop. Leys may be laid down for 1 to 6 years. Thorough cultivation by plough, disks, roller, and harrows is essential to give a fine, firm, and shallow seed bed of good tilth. Estab. depends upon rectification of any lime deficiency, generous phosphatic manuring, and the application of a soluble nitrogenous fertiliser (nitro-chalk or sulphate of ammonia) at sowing time. Main sowing dates are mid Mar. to early April, June, and late July-Aug., the earlier the more successful as a rule. Ley mixtures may be sown under corn but do better by direct sowing. Seeds mixture is determined more by usage: general purpose; mainly hay; or mainly grazing, and rainfall than by soil type; clovers, cocksfoot, timothy, and perennial ryegrass being chiefly employed, though lucerne and sainfoin are sometimes used. See R. G. Stapledon, *The Plough-up Policy and Ley Farming*, 1939; H. I. Moore, *Grassland Husbandry*, 1950.

**Leyburn**, par. and mrkt tn of the N. Riding of Yorks, England, 7½ m. SW. of Richmond, near the l. b. of the Ure. Pop. (of par.) 1281; pop. of rural dist. of L. (33 pars.) 7000.

**Leycesteria Formosa**, Himalayan Honey-suckle, or Flowering Nutmeg, hardy deciduous shrub, family Caprifoliaceae, with handsome racemes of white or purple flowers, succeeded by purple berries which

are eaten by game birds. A variety has pretty variegated leaves.

**Leyden, Lucas van** (1494-1533), *see* **LUCAS VAN LEYDEN**.

**Leyden, or Leiden**, city in the prov. of S. Holland, Netherlands, on the Old Rhine, 6 m. from the N. Sea, 17 m. N. of Rotterdam, and with canal communication to both Rotterdam and Amsterdam. It is an anct. tn. Its weaving estab. were very important at the end of the 15th cent., and L. baize and L. cloth were familiar terms. These industries have declined, and linen and woollen manufs. are the most important; there is also a considerable transit trade in butter and cheese, and the tn is a centre of the bulb-growing industry. But in spite of these industries L. is essentially an academic tn, and contains the most important univ. of the Netherlands. It was founded in 1575 as a reward to the inhab. for their courageous defence against the Spaniards in 1574, and was for a long time one of the most famous schools of Europe, numbering among its profs. Salmasius and Grotius. Connected with the univ. is a library containing over 200,000 vols., and some very important oriental and Gk MSS.; the botanic garden, founded in 1587; the observatory (1860); the museum of natural hist.; and the National Museum of Antiquities. The 14th-cent. Church of St Peter contains the tomb of John Robinson, who was pastor of the Pilgrim Fathers (q.v.). Many famous Dutch painters, among them Lucas van Leyden and Rembrandt, were b. in L., and the Lakenhal Municipal museum contains a large collection of their works. Pop. 93,800.

**Leyden Jar**, early type of electrical condenser consisting of a glass jar coated inside and outside with tinfoil. The outside is usually earthed. *See* **ELECTROSTATICS** and **CAPACITOR**.

**Leydenburg, or Lydenburg**, one of the oldest tns in the Transvaal (q.v.), cap. of L. dist. and situated on the Dorps R., a trib. of the Olifants, 144 m. ENE. of Pretoria. L. gets its name from the fact that the early Voortrekkers from Potchefstroom to Ohrigstad were so stricken with fever that they moved 30 m. S. and called their next settlement 'L.', or 'the place of suffering.' Near L. the first gold-mining area in the Transvaal of any size was discovered; formerly the area was rich in alluvial gold deposits, but the importance of these has now been superseded by platinum. The tn does a thriving trade in agric. produce. The first Dutch Reformed church, built in 1864, is now a museum of Voortrekker relics. L. was for 11 years an independent rep. until its amalgamation with the Utrecht Rep. (1858). In the L. dist. are 2 of the highest mts in the Transvaal, Mt Anderson and Mt Mauchberg, and the dist. is better provided with rvs. than any other dist. in the prov. Pop. (tn): Europeans, 2362; Bantu, 2041; Coloured, 103; Asiatics, 139.

**Leyland**, urb. dist. and tn of Lancs, England, 4½ m. S. of Preston. It has cotton-mills, bleaching yards, and manufs.

of paint, rubber products, and motor vehicles. Pop. 16,300.

**Leys School**, The, Cambridge, public school for boys, founded in 1875 by leading Methodists who wished to provide a public school of an undenominational Christian character.

**Leyte**: 1. Prov. of the Philippines, including the is. of L. and over 7000 is. and islets with a total land area of 114,830 sq. m. The is. of L. (2785 sq. m.) is a detached peninsula of Samar, from which it is separated by the strait of San Juanico. The coasts are high and there are good natural harbours. Abacá, sugar, hemp, rice, and coco-nut oil are produced, and the mineral wealth includes manganese, oil, and sulphur. The cap. is Tacloban. It is the eighth largest of the Philippine is., and became of great strategic importance (possessing 8 airfields) in the fighting in the SW. Pacific during the Second World War. Occupied by the Japanese in 1941, it was recaptured in 1944, following large-scale landings by U.S. forces on 20 Oct. The Japanese were finally driven out by 23 Dec. 1944. Pop. 835,532. *See* **PACIFIC CAMPAIGNS IN THE SECOND WORLD WAR**.

2. Tn on N. coast of above is., on L. Bay, 36 m. NW. of Tacloban. Pop. 20,559.

**Leyton, bor.**, forming a residential and industrial suburb of the metropolitan area of Essex, England, on the l. b. of the Lea. The bor. includes also the dist. of Leytonstone to the E. Saxon and Rom. remains have been found in the vicinity. L. has the Essex C.C. ground. Pop. 105,183.

**Lezaky, see** **LIDICE**.

**Leze-majesty, or Lése-majesté** (Norman-Fr., from Lat. *laesa majestas*, high treason), in jurisprudence, refers to any crime committed against a sovereign power. Amongst the Romans it denoted political misdemeanours, acts of rebellion, and similar offences against the majesty of the empire. It is now frequently used in a general sense as a term for an insult. *See* **MAJESTY**.

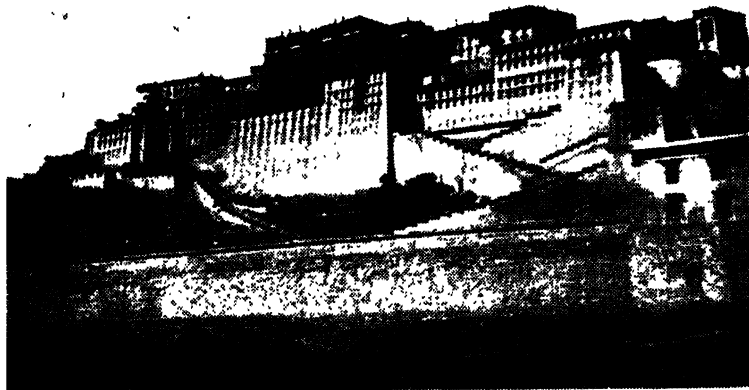
**Lezgians** (formerly also called Kyurins), the best known of the Caucasian-speaking peoples of Daghestan (q.v.); they live also in N. Azerbaijan. Most L. also speak Azeri. They numbered 134,000 in 1926, and are Sunni Muslims, mostly peasants, now collectivised. Their cultural centre is Derbent (q.v.). L. formed sev. khanates semi-independent from Persia in the 18th cent., which came under Russian rule between 1800 and 1830. The name L. was often used in the past to denote all the mt peoples of Daghestan.

**Lhasa, or Lhasa** (the 'Holy Land'), cap. of Tibet, 29° 39' N., 91° 5' E. It is situated on a fertile plain, 11,830 ft above sea level, and is surrounded by barren hills. A little to the S. flows the Kyiohu or L. R., which empties into the great Tsangpo (Yalutsangpo), some 40 m. to the SW. Though it is only 360 m. by road from Darjeeling, until the Brit. armed mission of 1904 advanced into the interior of Tibet for the purpose of arranging a commercial treaty, only one European,

Thomas Manning, an emissary of Warren Hastings, had penetrated to this 'forbidden city.' Before the Chinese Civil War of 1947-9 there was a Nationalist high commissioner in L., under the Tibetan-Mongolian Affairs Commission of the Executive Yuan (Cabinet). L. has been the seat of the Dalai Lama who rules Tibet by virtue of his position as supreme head of the Lamaist Church. When the Chinese Communist Army marched into Sikang in 1950, the Dalai Lama fled to India, while the alternative head, the Pachen Lama, proclaimed his allegiance to the People's Gov. in Peking. The Dalai Lama was later persuaded to return to L.

been estab. in the city, and it is cleaner than before. Considerable irrigation work done by the Chinese Army has expanded the arable area of the Kyichu valley with terraced fields on the hillside. L. is now cap. of the prospective Tibetan Autonomous Region which is being planned by a commission headed by the Dalai Lama. In 1954 both the Dalai Lama and the Pachen Lama were elected representatives to the first National People's Congress, and vice-chairmen of the Congress.

*Description.* The city can now be entered by 3 main roads: from the E. by the Szechwan-Tibet road which leads to the railway junction in Chengtu, from the



THE POTALA, LHASA

E.N.A.

and his representatives were sent to Peking to negotiate. Together with the Pachen Lama, agreement was reached in May 1951 between the Peking Gov. and the L. authority on the peaceful liberation of Tibet. In the autumn of 1954 two trunk roads, one from Yasn (1400 m. to the E.) and the other from Sining (1300 m. to the N.E.), reached L., linking the city with the rest of China. Another road was built from L. to Gyantse and Yatung via Shigatse in 1955. The original pop. of 50,000 has been greatly increased and trade revived with the opening to traffic of the 2 trunk roads. The inhab. include Tibetans, Chinese, Mongolians, Nepalese, and Ladakis. Most Tibetans are engaged in weaving stuffs from yak and sheep wools, but the potters also form a busy class, and the Nepalese are excellent gold- and silversmiths. The Muslims in the city are astute tradesmen. In recent years modern hospitals, schools, dept stores, a power station, and a People's Bank have

N. by the Chinghai-Tibet road which leads to the railway junction in Lanchow, and from the W. by the L.-Gyantse road which leads to India, the last being the old route by which Europeans and Indians approached the city. This route, the picturesque Pargo Kaling, lies between 2 eminences, the Chagpori, crowned by a fort and the lamas' medical college, and the other on which is built the splendid 13-storey Potala palace of the Dalai Lama. The Potala is a majestic mountain of red and white buildings covering a rock hill from top to bottom with its terraces, its buttressed battlements, and many-windowed walls. It is approached on either side by a broad stone stairway which zigzags up to the outward-sloping walls. The Jo Khang, or Great Temple of the Jo (Buddha), in the centre of the city is the prin. religious edifice and is a mile away from the Potala. The splendour of its exterior is largely hidden by surrounding houses, so that only a cluster of squat

buildings with glittering gilded roofs can be seen, but within are found jewelled lamps, highly wrought gold and silver vessels, and richly decorated chapels, images, and shrines. The private houses are built of stone or sun-dried brick; white-wash and bands of red and yellow enter largely into their colour scheme. L. is a refuge of monks and lamas. There are monasteries in the city, but the most famous lie some few miles distant. Of the latter, the oldest extant in Tibet is the Samye, founded in 770, situated 36 m. to the SE. on the l. b. of the Tsangpo. The Ganden, 25 m. to the E. of the city, on the other side of the Kyichu, is the oldest temple of the Yellow Sect founded by Tsongkhapa (1358-1418), whose marble tomb containing his body and the golden shrine impressed with his hand- and foot-prints are the treasure of the Tibetans. The Debung ('Bras Spungs'), 6 m. W. of L., with its 8000 monks, is the largest monastery and is also known as the 'Mongol Convent.' The Sera, 3 m. N. of L., is the resting-place of the Thunderbolt, symbol of strength.

**History.** L. was the cap. of the T'uphan state during the T'ang dynasty. Princess Wen-ch'eng of the T'ang was married to King Srongtsan-Gampo, who flourished in the 7th cent. and taught the Tibetans Buddhism. In 822 a peace pact was made between the Tibetan king and the Great T'ang emperor and it was inscribed on a giant monolith which is extant in the city. From that date the monarchy declined and yielded to a state of chaos; central authority was no longer respected and every town was under the control of its own priests. In the 14th cent. Tsongkhapa, a native of Kamsu, succeeded in unifying the Lamaist Church by founding the Yellow Robe Sect which did away with much of the primitive nature of the old Red Robe Sect. Tsongkhapa's 2 great disciples, Kengtunchupa and Kherchunima, were respectively the first Dalai Lama and Pachen Lama. Since the days of Ngawang Lopsang, the 5th Dalai Lama (d. 1681), his successors have dwelt in the Potala and ruled the Tibetans. See P. Landon, *Lhasa, the Tibet Expedition*, 1903-4, 1906; E. Candler, *The Unveiling of Lhasa*, 1910; A. David-Neel, *My Journey to Lhasa*, 1927; F. S. Chapman, *Lhasa, the Holy City*, 1938; articles on Tibet and Lhasa in *China Reconstructs*, 1953-5. For other reference books see bibliography under TIBET.

**Lherzolite**, in petrology a fine-grained, dark green or black rock, often granulitic, and consisting of olivine, chrome-diopside, and enstatite, and accessory picroite or chromite, and belonging to the peridotites. First described from Lherz, in the Pyrenees.

**L'Hôpital**, Guillaume François Antoine (1661-1704), Marquis de Sainte-Mesme and Comte d'Autremont, Fr. mathematician, b. Paris, entered the army, but was obliged to leave it on account of defective sight. He had always studied mathematics with great zeal, and in 1692 made the acquaintance of John Bernoulli, from

whom he learnt the principles of the infinitesimal calculus. His works include *Une Théorie des courbes mécaniques*, 1693, *L'Analyse des infiniment petits*, 1696, the earliest systematical treatise on the differential calculus; *Traité analytique des sections coniques*, 1720, *Les Lieux géométriques*, and *La Construction des équations*.

**L'Hôpital**, Michel de (c. 1504-73), Fr. statesman, b. Aigueperse, Auvergne, studied law at Toulouse and Padua, and became an advocate in Paris in 1534. He rapidly rose to a position of high authority, becoming successively auditor of the Rota at Rome, counsellor of the Parlement of Paris, ambas. for Henry II at the Council of Trent (1547-8), steward in the household of the Duchess of Berri, superintendent of finances (1554), member of the Council of State (1559), and chancellor of France (1560). He resigned in 1568, his moderation having brought him into disfavour with the Guises. See A. E. Shaw, *Michael de l'Hôpital and his Policy*, 1905.

**Lhotse**, Himalayan mt 2 m. S. of Everest; height 27,890 ft. The world's fourth highest peak, it was climbed in 1956 by the Swiss Fritz Luchsinger and Ernst Reiss. L. has 3 tops above 27,000 ft forming a sharp SE. ridge which is the frontier between Tibet and Nepal. L. is linked to Everest (q.v.) by its N. ridge which falls 2000 ft to Everest's S. Col.

**Li**, Chinese measures of length; **LI** = .3579 Eng. m. Also one thousandth part of a liang (see TAEI).

**Li-hsi**, King of Korea, came to the throne in 1864. Before the war of 1894-5 he made 2 unsuccessful attempts (1882 and 1884) to reject Chinese suzerainty over Korea. He was of a somewhat weak and vacillating character, and was largely influenced by the Russian agent residing at Seoul. In 1897 he renamed Korea 'Daihan,' and was proclaimed Emperor of Korea; but in 1910 the country was formally annexed by Japan.

**Li Hung Chang** (1823-1901), Chinese statesman, b. Hoiel in Anhui. In 1865 he became governor of Kiangsu prov., and on the outbreak of the Taiping rebellion in 1866 again took the field and ultimately succeeded in suppressing the movement, with the aid of Gordon's forces. He subsequently became the Viceroy of Tientsin, which position he held till his death. At the time of the war with Japan Li was in a position of great responsibility. He recognised the necessity of reorganising the Chinese forces to meet the threatening encroachments and rising influence of Japan, and under his supervision both army and navy were greatly strengthened. Nevertheless the Chinese forces were routed, and in 1895 the emperor sued for peace, Li being sent to negotiate. In 1896 he represented the emperor at the coronation of the tsar. He died shortly after the conclusion of the Boxer movement, the peace being mainly brought about through his exertions.

**Li Po**, see CHINESE LITERATURE.

**Lia Fail**, see INNISFAIL.

**Liadov**, Anatol Konstantinovich (1855-1914), Russian composer, b. St Petersburg, where he studied at the Conservatory under Rimsky-Korsakov. In 1877 he became a teacher there. He wrote especially well for the piano, but also composed orchestral works which made him a distinguished member of the national Russian school.

**Liakhov Islands**, see NOVOSIBIRSKIYE.

**Liana**, or **Liane**, term for kinds of tropical climbing plants, which are very numerous where there is high temp. and abundant moisture; it is estimated that there are at least 2000 varieties. Ls are a most conspicuous feature of tropical forests, twisting their snake-like coils round trees, hanging in festoons from bough to bough, and breaking into a wealth of blossom where they attain the sunlight. The term is sometimes extended to all climbing plants, which are divided into 4 types: scramblers, such as the bramble and the rattan palm; climbers, of which ivy is an example; twiners, like wistaria and honeysuckle; and tendrill climbers, of which the vine is typical.

**Liang**, see TAEI.

**Liaoning**, prov. of Manchuria, China, one of the 3 NE. provs.—L., Kirin, and Helungkiang—which comprised Manchuria. It lies in the S., with Korea on the SE. and Hopei and Jehol on the W. Its important tns are the cap. Mukden (Shenyang), Liaoyang, Chinchow, Fushun (a coal-mining centre), Penki (where there are iron deposits), and the industrial city of Anshan, which produces half of China's steel. Port Arthur lies at the S. extremity. The prov. produces coal and iron, wheat, millet, soya-beans, and fruits. The apple crop in 1956 amounted to 180,000 tons. Area 92,165 sq. m.; pop. (1954) 18,545,147.

**Liaotung**, peninsula of Manchuria in the extreme S., forming part of Liaoning prov. The Gulf of L. is on the W. and Korea Bay on the E. At the S. tip of L. is Port Arthur. Fuhsten is an important tn.

**Liaoyang**, city of Manchuria, lies in the prov. of Liaoning, between Mukden and Port Arthur. It was the scene of a great Russian defeat in 1904, when it fell into the hands of the Japanese. Pop. 100,000.

**Liaquat Ali Khan** (1896-1951), Indian politician, b. E. Punjab, second son of a wealthy landowning family, which claims descent from the Persian king Naushervan the Just, and is said to have gone to India 5 cents. ago. From 1919 to 1922 he was in England, and after taking a law degree from Exeter College, Oxford, he was called to the Bar by the Inner Temple. In 1926 L. was elected to the United Provs. Legislative Council, where he sat for 14 years, 6 of them as deputy president and leader of the Democratic party. In 1940 he was elected to what was then India's Central Legislative Assembly and became deputy leader of the Muslim League. Through his long and close association with Jinnah (q.v.) he was destined to play a leading part in the negotiations which culminated

in the partitioning of India into 2 dominions. In 1946 he was appointed a member of the Viceroy's Executive Council and leader of the Muslim League in the Interim gov. In this gov. he was the first Indian finance minister and presented the Indian budget of 1947-8. He became Prime Minister and minister of defence of Pakistan when the new dominion was estab. He took part in the Brit. Commonwealth Conference of April 1949 which discussed the commonwealth status of India. He was assassinated at Rawalpindi, 16 Oct. 1951.

On the death of Mr Jinnah in 1948 L. became automatically the foremost surviving leader of the Muslim League. In that position he showed real statesmanship, and set Pakistan firmly on the road to independence and progress. His loss was a calamity.

**Libanius** (AD 314-c. 393), Gk rhetorician, b. Antioch of a wealthy pagan family. Having studied at Athens, he taught at Constantinople, Nicomedia, and Antioch. Though a keen supporter of Julian the Apostate, he remained on friendly terms with his former pupils SS. John Chrysostom, Basil, and Gregory of Nazianzus. His writings, in spite of their defects, are a valuable source for the political and cultural hist. of his age. His collected works were ed. by R. Förster (12 vols.), 1903-23. They include 1600 letters and numerous rhetorical exercises. See R. A. Pack, *Studies in Libanius*, 1935; G. Misch, *A History of Autobiography in Antiquity* (trans.), vol. II, 1950.

**Libanus**, see LEBANON, MOUNT.

**Libation**, a drink-offering of wine or other liquid poured out in honour of a deity. Sacrifices were often accompanied by Ls, and the Romans at their meals made drink-offerings to their household gods. So too the Jews poured oil or wine upon their altars.

**Libau**, or **Libava**, see LIEPAJA.

**Libavius**, Andreas (1540-1616), Ger. chemist, b. Halle; became director of the gymnasium at Coburg. L. wrote an important treatise on chem. (*Alchymia recognita*, 1597) and designed the first chemical (as opposed to alchemical) laboratory; he discovered stannic chloride, SnCl<sub>4</sub>, and developed a rudimentary system of chemical analysis.

**Libel**, see DEFAMATION.

**Libellati**, Christians who evaded the persecution of Decius (AD 250) by obtaining *libelli*, i.e. official statements that they had sacrificed to the gods, and that the charge of Christianity was unfounded. The L. were reckoned as apostates (*lapsi*) and excommunicated for life; but there were so many that this discipline was gradually modified. The relaxation caused a schism of the rigorists under the anti-pope Novatian (251).

**Libellula**, typical genus of the family Libellulidae, or dragon-flies (q.v.). Named by Linnaeus (q.v.) from the supposed resemblance of the expanded wings to an open book.

**Liber**, Rom. deity identified with Dionysus when the Hellenic cult of

Demeter spread to Italy. Originally the It. god of fertility, and especially of the vine, he was called L. from the unrestrained character of his worship. A temple to L., Libera, and Ceres stood near the Circus Flaminius, and a festival, called the 'Liberalia,' was held in Rome on 17 Mar. In rural parts a feast to L. and Libera (Gk Persephone) was held at the vintage, the first fruits of which were offered up, with cakes of meal, honey, and oil. At the Liberalia youths used to lay aside the *toga praetexta* and assume the *toga libera*, or *virilis*. See Ovid, *Fasts*, iii.

**Liberal Regis** (Valor Ecclesiasticus), book compiled in 1535 on the eve of the Reformation, which contains an account of the valuation of all the eccles. property of England and Wales. The authorisation for the work was an Act providing for the payment to the king as the supreme head of the Church of England, not only of first-fruits and benefices, but of one-tenth of the entire property of the Church. Queen Anne, by giving up first-fruits and tenths to trustees, who were empowered to administer them for the benefit of the poorer clergy, made them part of the fund since known as Queen Anne's Bounty.

**Liberal Party, The.** Liberalism is a belief in the value of human personality, and a profound conviction that all human progress has been due to the free exercise of men's powers: the rate of that progress always depends upon the degree of emancipation from unnecessary restrictions upon freedom of thought and action. The long uphill struggle for political and civil liberty in the 19th cent. was waged by the L. P.—the lineal successor of the historic Whig party—under the inspiration and leadership of, among others, Bentham, Bright, Cobden, J. S. Mill, and W. E. Gladstone (q.v.), the latter being 4 times Liberal Prime Minister. For 30 years before the passing of the 1832 Reform Act there had been no social reform in spite of widespread distress. Before the Reform Act there were fewer than half a million electors: many members of Parliament sat for 'rotten bors,' and seats were openly bought and sold. Gladstone said in 1860: 'The practice of the old Parliamentary Constitution of England to carry forward enfranchisement from time to time ceased in 1688.' Under Gladstone's slogan, 'Peace, Retrenchment, and Reform,' Victorian Liberals were primarily concerned with liberating trade, and estab. civil and political liberty. Universal male suffrage was achieved in 1884. Abroad slavery was abolished, and the whole character of the Brit. Empire transformed. Liberals believed that with safeguards against arbitrary powers and control of gov. in the hands of the people instead of a single class, individual energy and enterprise would, if left alone, bring well-being to the whole community. It soon became apparent that much more than the mere removal of restrictions was necessary if real liberty was to be achieved, and that the community, acting through the State, must assume responsibility for ensuring

healthy conditions of life and work, educational facilities and safeguards against undeserved insecurity and poverty. The provision of these things was a large part of the work of Liberalism during the second half of the 19th cent and the first part of the 20th. They were the subject of a long series of Public Health Acts, Factory, Housing, and Educational Acts, and immense expenditure upon hospitals, drainage, schools, and univs. The Liberal gov. of 1906-14, under Prime Ministers Sir H. Campbell Bannerman and Asquith (later Lord Oxford and Asquith), placed a great code of social legislation on the statute book, including old age pensions, national insurance, minimum wages, trade boards, etc. The 1911 Parliament Act broke the traditional power of the House of Lords to veto reform legislation, Home Rule for Ireland, taxation of land values, and other Liberal reforms were frustrated by the First World War.

**Modern Liberalism.** Though out of office since 1918 the L. P. is still the acknowledged champion of the rights of the individual and the essential freedoms. It was the first political party to advocate family allowances and to support the Beveridge report, and has made valuable contributions to economic and social thinking. David Lloyd George and Clement Davies (q.v.) were outstanding champions of Liberalism in this period. To-day in Parliament the L. P.'s 5 members (1957), under the leadership of Joseph Grimond (married to Asquith's granddaughter), are the only check against domination by the big party machines of Left and Right. Under the present electoral system—1 representative for each constituency—Parliament does not reflect the true value of voting forces in the country. In 1950 a Liberal vote of over 2½ million returned only 6 Liberal members. Electoral reform is to-day still a plank in the programme of the L. P. In 1958 there was a notable swing to Liberalism in the by-elections, and the seat at Torrington (q.v.) was won from the Conservatives. See INDIVIDUALISM.

**Liberal Unionists, see** POLITICAL PARTIES.

**Liberalitas Juliae, see** EVORA.

**Liberation of Labour Group,** one of the first Russian Marxist organisations, set up in 1883 by the former Populists (see POPULISM) Plekhanov (q.v.) and P. B. Akselrod, who lived in emigration in W. Europe. They did much to popularise Marxism in Russia. In 1900 they joined forces with Lenin against Reformism and Economism (q.v.; see also ISKRA). The group was dissolved in 1903.

**Liberec:** 1. Region (*krať*) in NW. Czechoslovakia, bordering on Germany and Poland, part of the former prov. of Bohemia (q.v.). It contains part of the Sudetic Mts (q.v.). Area 1635 sq. m.; pop. 480,000.

2. (Ger. *Reichenberg*) Czechoslovak tn, cap. of the region of L., on the Neisse (q.v.). It has a folk museum, and manufs. chemicals and textiles, for the latter of which it has been known since the 16th cent. Pop. 52,800.

**Liberi, Pietro** (1605-87), called 'Il Libertino', It. painter, b. Padua, studied under Padovanino. His paintings exhibit great variety of subjects and treatment, though he gained his nickname from his naked Venuses in the manner of Titian.

**Liberia**, Negro rep. in W. Africa, lying between the Brit. colony of Sierra Leone on the NW., the Fr. colony of the Ivory Coast on the E., and Fr. Guinea on the N., and extending some 350 m. along the N. coast of the Gulf of Guinea, with the R. Mano on the W. and the Cavalla on the E., navigable for 50 m. From time to time the boundaries of the Liberian frontier have been marked out by Franco-Liberian treaties, and the present demarcation was fixed in 1911. The chief headlands are Cape Mount, 1050 ft above sea level, with the lagoon known as Fisherman Lake at its base, Cape Montsenado, 350 ft, and Cape Palmas, 200 ft above the sea. The area is 43,000 sq. m. Monrovia is the cap., and there are 9 ports of entry. The coastal plain is narrow except in the W.; in the E. the land rises to Mt Kibi Dandi (2296 ft). The civilised region stretches, about 20 m. in width, along the coast; further inland is unexploited, little explored forest. The prin. rvs., besides the above mentioned, are the Cestos, of which the Nuon has been discovered to be the upper course (1908), the St John, and the St Paul. Most of these have rapids or falls which prevent navigation. The hinterland is composed of vast forests; the Nidid forest, possessing *Puntumia* rubber trees, is being actively developed with Amer. capital as a source of natural rubber. In 1954 the Goodrich Rubber Co. was granted an 80-year concession to produce rubber. The Firestone Plantations Co. already has large plantations employing 25,000 men and producing (1953) 30,000,000 lb. of rubber, and 41,640,640 lb. of latex. The Firestone concession covers 1,000,000 ac. of which, in 1952, 81,259 ac. were planted. A further 25,400 ac. were under production in 1953. So far little has been done with regard to the mineral wealth: there are indications of gold in most of the rvs., also of bitumen; sapphires have been found, corundum being met with in many places; lead and iron are also found. Iron is being worked and gold-mining is increasing. Some diamonds are found, and when illicit diamond-mining was at its height in Sierra Leone, it was known that the bulk of these stones was smuggled to the international markets through L.

KORUIN, COUNCO, CUCUB, DISSAVA, KURU-MUIN, and Ivory are produced and exported. There are about 400 m. of state roads, and 195 m. of private roads in the rubber plantations. With lend-lease (q.v.) aid the road system was extended into the interior. There is an airport at Robertsfield, and services are run by Air France and Pan-Amer. Airways. A light railway, built in 1951, connects Monrovia with the Bomi Hills iron ore mines (40 m.).

In 1821 the Amer. Colonisation Society

selected Cape Montsenado as a refuge for the Amer. freed Negro slaves, and from that time onward they continued to be sent there. The Amer. colony was founded by Jehudi Ashmun between 1822 and 1828, the name L. being given it in 1824 by the Rev. R. R. Gurley. Until 1857 there were 2 reps., L. and Maryland. Troubles on the frontier led eventually to an Amer. commission being sent to L. by President Roosevelt in 1908, and this resulted in Amer. supervision of the finances, military organisation, and the boundary question. The rep. is now governed by a president, elected for 8 years, a House of Representatives, and a Senate, its constitution being modelled on that of the U.S.A. There are local magistrates, courts of common pleas, quarterly courts (5), and a supreme court. There is a gov. college at Monrovia, and about 200 schools, of which the greater part is maintained either by the gov. or by missions. The official gov. language is English. The total pop. is about 1,000,000, which includes the Kru Mandingo, Gola, and Kpwezi tribes. The Mandingos are Muslims, and the other tribes are mostly pagan. The Americo-Liberian pop. numbers about 12,000. About 60,000 of the Negroes on the coast are said to have been converted to Christianity. Until L. declared war on Germany in 1917 about 70 per cent of her trade had been in Ger. hands. L. was one of the signatories of the treaty of Versailles, and an original member of the League of Nations. In 1927 the U.S.A. arranged a loan of \$5,000,000, with which the previous loan (1912), mainly British in origin, was paid off. As a result of an International Commission of Inquiry on Slavery and Forced Labour, the Liberian Gov. decided to adopt various suggestions and recommendations for social reform, and requested the co-operation of the League of Nations to that end. But in 1939 natives from L. were still being taken to the Sp. is. of Fernando Po to work in the cocoa plantations under conditions which savoured strongly of slavery. During the Second World War agreements between L. and the U.S.A. in 1942 and 1943 led to America undertaking considerable development in the country from the point of view of defence and communications. L. finally declared war on Germany and Japan on 26 Jan. 1944. In this year an Amer. mission was sent out to further the economic development of the country. See C. H. Huberich, *The Political and Legislative History of Liberia* (2 vols.), 1947, and *The Liberian Year Book*.

**Liberia** (Costa Rica), see GUANACASTE.

**Liberius**, St (352-66), Pope, who succeeded Julius I. He was banished to Thrace (355) by Emperor Constantius for refusing to excommunicate Athanasius. About 357 he was allowed to return to Rome, whereupon Felix II, who had been installed in his absence, retired. It has been asserted, and some historians still hold, that L. signed the Arian 'Second Formula of Sirinium' as the price of his



liberation. He later condemned even the mitigated 'Third Formula' (360). See L. Duchesne in *Mélanges de l'école française de Rome*, xxviii, 1 and II, 1808, and J. Chapman, 'Contested Letters of Pope Liberius' in *Revue Benedictine*, 1910.

**Libertad, or La Libertad:** 1. Dept in the SW. of Salvador (q.v.), traversed by mts. The Pacific Ocean forms the S. boundary and the port of La L. lies on it. There are crops of rice, coffee, sugar, etc., which constitute a considerable export trade, and there are also silver- and gold-mines. Area 840 sq. m.; pop. 165,200.

2. La L., port of the above prov., on the Pacific, 16 m. SSW. of Nueva San Salvador, and 23 m. from San Salvador itself. Most of Salvador's imports enter the country by this port. It is a popular resort, and noted as a trading centre on the 'Balsam Coast.' Pop. 3500.

3. Maritime dept of NW. Peru, with Ancash to the S. and Lambayeque to the N. The W. Cordillera traverses the dept from NW. to SE. The short rivs. are useful for irrigation. Large quantities of sugar are produced, and coffee, cocoa, rice, and other crops are cultivated. Mineral products include silver and gold, and there is much timber. Trujillo is the cap. Area 10,201 sq. m.; pop. 481,440.

'Liberté,' quadruple-screw turbine passenger liner of 51,839 tons gross, the largest in the Fr. merchant fleet and flagship of the Fr. line. She was built as the Norddeutscher Lloyd's *Europa* in 1928, and in 1930 made an Atlantic crossing at 27.91 knots, taking the Blue Ribband from the old Cunarder *Mauritania* (26.85 knots). In 1945 she was taken over by the Allies as war reparations and was ultimately ceded to France, entering the Atlantic service in 1950.

**Liberton,** Scottish vil., now part of the city of Edinburgh (q.v.). It has an anc. par. church; in the neighbourhood are quarries and coal-mines.

**Liberty, Equality, Fraternity** (Fr. *liberté, égalité, fraternité*), motto of the Fr. rep., dating from the first revolution, when it was adopted as a political confession of faith, embodying the main teachings of the social philosophers of the 18th cent. By 'equality' was meant merely equality for rich and poor in the eyes of the law and the absence of class privileges.

**Liberty Bell,** bell cast in London in 1752, with the motto 'Proclaim liberty throughout the land unto all the inhabitants thereof.' It was rung on the occasion of the adoption by Congress of the Declaration of Independence. In 1835 it cracked, and now is preserved as a historic relic in Independence Hall, Philadelphia.

**Liberty Loans,** name given to the internal loans raised in the U.S.A. during the First World War. There were 4 separate issues of these loans during the war, and after the armistice a fifth, known as the Victory Liberty Loan. The Amer. people subscribed some \$24,000,000,000, and nearly one-quarter of the pop. of the country became owners of this scrip. All the bonds were issued

at par, some of them being as low in value as \$50. The first issue bore interest at 3½ per cent, the fifth at 4½ per cent. The fourth loan, which was the biggest raised by any country during the war, brought in \$7,000,000,000. Every loan was oversubscribed.

**Liberty of the Press,** see PRESS, FREEDOM OF THE.

**Liberty Party,** Amer. political anti-slavery party, founded 1840. It opposed the annexation of Texas. Its last convention was held in 1847. In 1848 it merged with anti-slavery Whigs and Democrats to form the Free-Soil party.

**Liberty Ships,** name given to cargo vessels of 7100 gross tonnage built by assembly of prefabricated material under the auspices of the U.S. Maritime Commission. The original programme in 1941 consisted of 200 ships for Lend-Lease purposes. In 1942, after the Jap. attack on Pearl Harbour, the programme was expanded, and in the peak year in 1943 over 1200 L. S. were completed in U.S. dockyards. The vessels were capable of a speed of 11 knots, some being coal burning, some oil. Dimensions: length 441 ft 6 in.; beam 56 ft 10 in.

**Liberum Veto** became an integral part of the Polish constitution in the earlier half of the 17th cent. It was adopted in the diet by the *szlachta*, or lesser nobility. Any one of them might veto any measure introduced into the diet, and thus ensure the diet's dissolution. The L. V. was first used in 1652, and was finally abolished in 1791, having contributed much to the downfall of the independent Polish state.

**Libido,** see PSYCHOLOGY.

**Libitina,** Rom. goddess of funerals, whose temple at Rome contained all the symbols of mourning. The door through which wounded gladiators were carried from the arena was called the Gateway of L.

**Libmanan,** tn of the Philippine Is., situated in the Camarines Sur prov., Luzon. It is a trade centre. Pop. 43,482.

**Libocedrus,** genus of evergreen conifers, family Pinaceae, 9 species, of which *L. decurrens*, Incense Cedar of Oregon; *L. chilensis*, Chilean Cedar of Chile; and *L. plumosa*, Kawaka of New Zealand, are sometimes grown in mild dists. in Britain.

**Libonia,** winter-flowering greenhouse plants, natives of tropical America, now included in the genus *Jacobinia*.

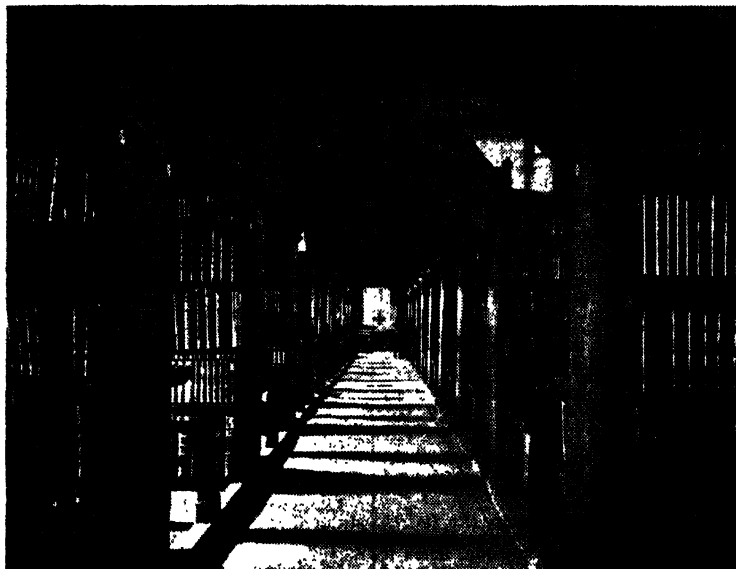
**Libourne,** Fr. tn, cap. of an arron., in the dept of Gironde, at the confluence of the Dordogne and the Isle. One of the anc. free tns founded by the English (c. 1269) it became a thriving city, and is still a busy riv. port. It has wine and ship-building industries. Pop. 20,200.

**Libra,** or the Balance: 1. Seventh sign of the zodiac (q.v.), which the sun enters about 23 Sept. In the older Gk writers the Scorpion occupies 2 constellations of the zodiac, or rather the body of the animal occupies one and the claws, *chela*, another. — the *chela* were certainly a part of the Scorpion, yet they are often mentioned (as by Aratus, for

instance) by themselves, as if they formed a distinct constellation. The word *chela* had sev. significations; so that it may have been by simple mistranslation that the Romans (according to Hyginus, Virgil, etc.) gave the name of L. to the part of the leaves in question, and drew back the claws of the Scorpion to make room for the scales. L. is surrounded by Scorpius, Ophiuchus, Virgo, Centaurus, and Lupus, and contains the third magnitude star  $\alpha$  Librae, with a companion of fourth magnitude, 230" distant, easily seen with binoculars.

receive a copy of every book pub. in the U.K. (see COPYRIGHT LIBRARIES). Specialised national collections are maintained at the Science Library (over 390,000 vols.) which provides, in addition to the finest reference collection of scientific and technical literature, an information and bibliographical service; the Victoria and Albert Museum Library (300,000 vols. on the arts); the Natural Hist. Museum (300,000 vols.); and the Patent Office (360,000 vols. and 100,000 patent specifications).

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Herbert Felton

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2. Rom. unit of weight, and a unit of value, hence the Eng.  $\sharp$ . Lat.-Amer. countries, Spain, and Portugal still use the term for a unit of weight.

**Libra** (Roman), see METROLOGY.

**Libraries.** Many of the great L. of the world receive separate entries in this encyclopaedia; here is given a brief account of the different types of L. in Great Britain other than Public L. (q.v.) and the outstanding L. of other countries, both public and private.

**UNITED KINGDOM.** Three L. serve as national collections, the Brit. Museum (q.v.), the National Library of Scotland (q.v.), and the National Library of Wales (q.v.). These L. are deposit L. under the copyright laws, and together with the Bodleian Library (q.v.) and Trinity College (Dublin) Library are entitled to

of place being accorded to the Bodleian Library in Oxford. The Univ. Library of Cambridge (with over 2,000,000 vols.) dates from the 15th cent. and is now housed in a magnificent modern building, while the comparatively recent library of the Univ. of London (founded 1837), containing some 580,000 vols. is also in a spectacular new building, whose central tower containing the book-stacks rises above the roof-tops of Bloomsbury. It is augmented by the L. of the London School of Economics (the Brit. Library of Political and Economic Science, 975,000 vols.), as well as such specialised L. as those of the Institute of Advanced Legal Studies and the School of Oriental and African Studies. Of the many fine old college L. should be mentioned Christchurch at Oxford and Trinity College,

Cambridge. Of the Scottish univ. L. the earliest is at St Andrews, founded in 1456, while Edinburgh Univ. Library was estab. in 1580. New L. have been built at the univs. of Leeds, Manchester, and Southampton, among others.

Of the learned societies the first 2 to be mentioned are the L. of the Royal Society, founded in 1660, and the Royal College of Physicians, founded in 1518, and now containing a reference collection of 40,000 vols., not all on medicine. The Royal Institution (55,000 vols.) concentrates on the sciences in general, while others, such as that of the Zoological Society (75,000 vols.), have valuable specialised collections. There are many fine endowed L. The Chetham Library at Manchester takes priority as perhaps the earliest (1653) free library in England, and the John Rylands Library (q.v.) contains a fine collection of incunabula. The L. of the Inns of Court were estab. in the 16th cent. They suffered badly in the Second World War; the new library of the Inner Temple was opened in April 1958.

Of religious L. the largest is Sion College Library, for some time during the 18th cent. a copyright library. Also serving the Church of England is the library of Lambeth Palace in which are to be found over 80,000 charters, deeds, and other MSS. Dr Williams Library (95,000 vols.) covers theology and philosophy, and has pub. a useful catalogue of its stock.

A special part is played by the L. of gov. depts, such as those at the War Office, the Ministry of Education, and the Board of Trade. The library of the House of Commons specialises in books on economics and financial subjects, and the library of the House of Lords on legal aspects of gov. The Public Records Office contains over 40,000,000 documents.

Large business firms and industrial organisations have more recently come to see the value of establishing library and information depts, and while many have large collections of books the tendency is to collect, and make available by means of abstracting, indexing, and systematic classification, the monographs and periodical articles which record the advance of scientific and technical knowledge before it reaches book form.

Perhaps unique among L. is the London Library (q.v.) which loans to subscribers books from its stock of 600,000 vols. The pub. catalogues of the London Library are valuable as bibliographic tools, as are the printed catalogues of Lewis's Library of scientific and technical books. The largest of the general subscription L. operating to-day are the Times Book Club, and the L. of Harrods, Army and Navy Stores, Boots, and W. H. Smith (see also under MUDIE).

Most colleges and technical institutes have L. for the use of lecturers and students, notably the Regent Street Polytechnic and the St Bride Institute (40,000 vols. on the hist. of printing).

Other subjects too numerous to mention are the special concern of the L. of

societies and institutions. The Royal Geographical Society Library and Map Room (the latter open to the public) has a stock of 80,000; the Royal Institute of Brit. Architects Library has a stock of 60,000; while printed catalogues have been issued recently by the L. of the Institute of Civil Engineers, the National Book League (q.v.), the Brit. Drama League, and others.

Most famous London clubs have their own L., mostly founded in the 19th cent., e.g. the Athenaeum and the Reform Club.

The Library Association (q.v.) is the professional body for librarians, and ASLIB is the Association of Special Libraries and Information Bureaux.

UNITED STATES OF AMERICA. The national and copyright deposit library is the world-famous Library of Congress (q.v.), estab. in 1880 for the use of congressmen and now containing 7,500,000 vols. It conducts a central cataloguing agency, and has a union catalogue of all books in Amer. L. The pub. form of its classification is used in many other countries. Famous L. founded by private benefaction are the Johns Hopkins Library (q.v.), the Folger Shakespeare Library at Washington, and the Huntington Library at San Marino, California (both specialising in Shakespeare and the 16th cent.), and the Pierpont Morgan Library in New York (MSS. and incunabula). The Army Medical Library (estab. in 1836, 600,000 vols.) issues a printed catalogue, and the Massachusetts Institute of Technology is perhaps the best example in the world of a decentralised special library. Harvard Univ. Library, the oldest in N. America, has over 4,000,000 vols., and there are notable L. at the univs. of Yale, Princeton, Chicago, Illinois, Indiana, and California. The first free tax-supported library was in Peterborough, New Hampshire, in 1833; the first to be estab. by law was the Boston public library in 1854. The U.S.A. leads the world in the provision of well-organised and progressive L. which make full use of microfilm and photo devices, and numerous time-saving methods which leave the qualified staff free to attend to readers' inquiries. Among the best are Cleveland and Los Angeles Co., the vast New York public library which also has a very fine collection of incunabula, and many others such as Baltimore, Queensborough, and St Paul, Denver. Many schemes of library co-operation are in operation up and down the country (notably the Farmington Plan and the Mid-West Library Center) and the mobile L. cover immense distances. Professional training for librarianship is considered as a post-graduate subject and there are sev. library schools.

EUROPE. *Austria.* The Imperial Public Library at Vienna is said to date from 1440, and to have been founded by the Emperor Frederick III. It contains a portion of a famous medieval collection, that of Matthaeus Corvinus of Hungary. Its printed vols. number over 1,000,000.

with nearly 30,000 MSS. It also lends vols.

*Belgium and France* have old-estab. royal and private L. The Bibliothèque Nationale (q.v.) in Paris is one of the great L. of the world and has of all great L. the longest hist., though it may not be true that it dates from the collections of Charlemagne or of St Louis. What is certain is that it contains a very large number of the collections of the Fr. kings, and that it represents the Bibliothèque du Roi of times before the Fr. Revolution. It contains upwards of 4,000,000 vols., and a magnificent collection of MSS., prints, medals, and maps. Other great L. are those of the Arsenal, confiscated at the revolution, the Mazarin Library, and that of the univ., originally the Sainte-Geneviève Library, founded in 1624. The library of the Sorbonne contains one and a half million vols. In Belgium there is the Bibliothèque Royale, which serves the whole country.

*Czechoslovakia.* The National and University Library in Prague was founded in 1348 and has now over 1,500,000 vols.

*Germany.* Owing to the importance of the various state L., no national library existed until recently, when the former Prussian State Library in Berlin was recognised as the national library. It contains 2,850,000 vols., but at the end of the Second World War and the div. of Germany these were divided between the Deutsche Staatsbibliothek in Berlin and the Westdeutsche Bibliothek at Marburg. A union catalogue of books in Prussia, Munich, and Vienna was begun in 1931, and started again in 1950 in both E. and W. Germany. The Bavarian State Library at Munich is the finest of the other state L. which include those at Dresden and Stuttgart. Frankfurt and Leipzig have always been important literary and book trade centres, and co-operation between the L. of different states is well advanced; the public library movement, however, has made little headway.

*Holland.* Holland's national library is the Royal Library at The Hague, built in 1798 and containing 600,000 vols. The univs. of Leyden (1575), Utrecht (1582), Groningen (1614), and Amsterdam (1578) have fine old-estab. L. The first publicly administered library was at Dordrecht, but there are no public L. as we know them, as all charge an ann. subscription or a borrowing fee.

*Italy.* Chief in antiquity, in wealth of MSS., printed rarities, and inexhaustible treasures of archives and historical and other works, is the library of the Vatican at Rome. Its early hist. is broken by the removal of the popes with the books to Avignon, and its modern hist. dates back to the Renaissance popes, of whom may be mentioned Nicholas V, Sixtus IV, and Sixtus V, the founder of the present building in 1588. Printed books are said to number 700,000, MSS. nearly 60,000, of which the famous *Codex Vaticanus* of the Bible stands first, together with the great MSS. of Virgil, Terence, etc. The library is open to the public, and since the papacy of Leo XIII the archives also with

certain reservations. Next in importance, both historically and for its invaluable contents, is the Biblioteca Mediceo Laurenziana at Florence, containing the collections of Cosimo, Piero de' Medici, and Lorenzo the Magnificent. It was opened to the public in 1571, and contains some of the most precious classical MSS. in existence, including over 700 dating from before the 11th cent., and in addition a 4th-cent. Virgil and a 10th-cent. Homer. The largest modern library in Italy is the Nazionale Centrale Vittorio Emanuele at Rome, founded 1875, with nearly 2,000,000 vols. Other important national or municipal L. are at Naples, Florence, Milan, Venice, Turin, and Palermo, while all over Italy are numerous anct L., containing great treasures, such as the specimens of early printing at Subiaco and the famous Biblioteca Ambrosiana at Milan.

*Scandinavia.* The public L. of Denmark and Sweden are among the best in the world. The co. and rural services are well developed and the best large city service outside the U.S.A. is probably that of Stockholm. Few compare with the smaller public L. of Malmö in Sweden and Aarhus and Frederiksberg in Denmark. Sweden has also the Royal Science Academy Library at Stockholm and the Univ. Library at Upsala, which has over 1,000,000 vols. The national library in Norway is the Univ. Library in Oslo which co-operates extensively with other L., many of which suffered heavily during the war. Denmark has 3 copyright L., the Royal Library at Copenhagen, estab. in 1661 (1,000,000 vols.), and the Univ. L. of Aarhus and Copenhagen. A variety of bibliographical and cataloguing services is undertaken centrally at the Bibliographical Office, an independent concern set up in 1939. Most of the co. library services are based on a municipal authority and one co. runs a library boat.

*Spain.* The Biblioteca Nacional in Madrid (previously the Royal Library, 1712) has over 1,500,000 vols.

*Switzerland* is best known for its research L. such as the library of the Swiss Federal Institute of Technology in Zürich and the 6 univ. L. The library at Basel was founded in 1461. The National Library in Bern lends non-fiction to the whole country.

*U.S.S.R.* The 2 chief L. are the Lenin State Library at Moscow (11,000,000 vols.) and the Leningrad State Public Library (4,000,000 vols.), one of the great L. of the world.

**BRITISH COMMONWEALTH LIBRARIES.**  
*Australia and New Zealand.* Australia has a well-developed system with large L. in the cap. cities and active inter-lending. The L. of Sydney in New S. Wales, Melbourne in Victoria, Perth in W. Australia, and Adelaide in S. Australia were all founded in the 19th cent. W. Australia was the last to appoint a Library Board, but it is one of the most flourishing and progressive. The Commonwealth National Library is at Canberra. *New Zealand* has public L. at Wellington, where there is a

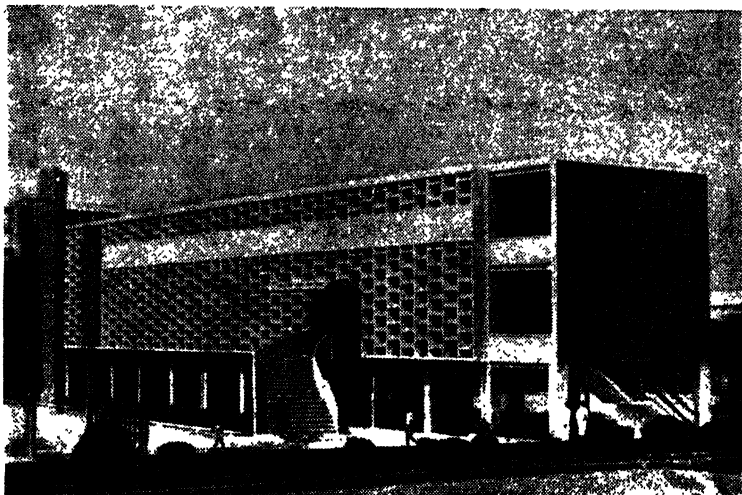
fine new building, and at Auckland and Dunedin.

**Canada.** The national library is the Parl. Library at Ottawa (1849) and the L. of the univs. of Alberta and Macdonald college in Quebec run extensive services in their areas. The best L. are on the E. seaboard: the public and the univ. L. in Toronto, and others in Ontario, and in the prov. of Quebec at MacGill Univ., Montreal. A large-scale regional system covers the country and there are mobile services in the provs. of Brit. Columbia,

E. Caribbean Regional Library Service and the Central Library of Trinidad and Tobago are now combined under one Brit. director, together with the public library of San Fernando.

British Council Libraries exist in a number of foreign countries throughout the world and in the Commonwealth.

See A. Esdalle, *National Libraries of the World*, 1934; L. McColvin and J. Revie, *British Libraries*, 1946; L. McColvin, *The Chance to Read*, 1956; J. W. Thompson, *The Medieval Library* (2nd ed.), 1957; J.



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CENTRAL LIBRARY, ACCRA, GHANA

Saskatchewan, Newfoundland, and Nova Scotia.

**Ghana** has a growing library service, started in 1944 by the Brit. Council. In 1946 the Aglonby Library was opened and the Gold Coast Library Board set up to administer it in Accra. Mobile L. are in use for inland areas.

**India.** The largest institutional library is the Imperial Library at Calcutta, opened in 1903. No public L. existed until the important U.N.E.S.C.O. pilot project began with the Delhi public library which is free.

**South Africa.** The oldest S. African public library is at Cape Town, estab. in 1818 and holding copyright privilege for Cape Prov. Together with the Pretoria State Library it forms the National Library. Also there are L. in the legislatures, the parl. library at Cape Town being prominent. There are univ. L. at Pretoria and Cape Town.

**The West Indies.** The W. Indies have had L. of some kind for generations. The

Sears, *Library Catalogues of the English Renaissance*, 1957; *Aslib Directory*, 1958.

**LIBRARY CO-OPERATION.** Co-operation between L. of every variety has been growing since the McColvin report of 1942 made clear the necessity for a system of co-ordinated library provision—regional, subject specialisation, inter-library loans, and a centralised national authority. This authority is the National Central Library (q.v.) which acts as the clearing house for requests for titles unobtainable in any of the 6 regions into which the library resources of Great Britain have been divided, as well as keeping a large stock of the more expensive or unusual vols. Each region maintains a union catalogue of the books available for interlending within its region, and all of these are duplicated at the N.C.L. Attached to the N.C.L. by agreement are a large number of 'outlier' L. (the L. of specialised subjects belonging to societies, colleges, and institutions), so that it is

possible that a man in a rural dist. of Cumberland who applies to his local co. library for a book not generally available will eventually be lent a copy belonging to the library of some small but specialised society in London. In the same way, and through the agency of the N.C.L., books are borrowed and lent abroad.

Other smaller schemes of library co-operation include the Metropolitan special collections whereby each London bor. specialises in a particular subject from which it loans books to other bor. L. A joint fiction reserve is also maintained in this way. The SE. Region has a similar scheme, and in Sheffield co-operation between public, univ., and industrial L. is far advanced. The idea of the inter-availability of readers' tickets has gained a firm hold in London and at coastal resorts. See R. F. Vollans, *Library Co-operation in Great Britain; Report of a Survey of the National Central Library and the Regional Library Bureau*, 1952; P. H. Sewell, *The Regional Library System*, 1956.

**Libraries, Friends of the National.** This society was founded in 1931 to assist national and other L. by promoting the acquisition of books and MSS. of importance, by arranging photographic reproduction when originals are unavailable, and by co-operation with the National Art Collections Fund in cases of MSS. and books with an artistic as well as historical or literary value. Funds are acquired by gifts, bequests, and special appeals. Examples of its work are the contribution of £800 towards the purchase of the *Sherborne Cartulary* for the Brit. Museum, and in 1956 the contribution of £500 towards the purchase of the Bute Collection of plays for the National Library of Scotland.

**Library Association.** The L. A. was founded in 1877 and incorporated by royal charter in 1898, its prin. purposes and powers being to unite all persons engaged or interested in library work; to promote the better administration of libraries, and the improvement of the position and qualifications of librarians; to hold examinations in librarianship and to issue certificates of efficiency; and to promote and encourage bibliographical study and research. The association has a total of 12,000 personal and institutional members, including nearly 700 from countries outside the Brit. Isles. It maintains the Register of Chartered Librarians on which there are 4700 fellows and associates. Ten branches and five sections serve the local and special interests of members respectively. Professional examinations are held twice yearly in June and Dec.

**Library of Congress,** the national library of the U.S.A., and the third largest in the world. It was founded in 1800, and shortly afterwards incorporated Jefferson's Library of some 7000 vols. It now contains over 10,000,000 vols. and pamphlets. Its collection of MSS. is also notable. It receives a copy of every book copyrighted in the U.S.A. Over 300,000

vols. are added to the library each year. The classification system invented for the L. of C. is pub. in book form and used by libraries all over the world (see **CATALOGUES AND CLASSIFICATION**). The catalogue too is pub. in book form, and also on cards which are bought by libraries to use in their own card-catalogues.

**Libration.** This term is applied to a small irregularity, compounded of the moon's rotation round her axis and her orbital motion, by means of which her visible hemisphere is not always quite the same. The mean revolution of the moon round her axis is the same period of time as her mean revolution in her orbit. If both motions were equable the moon would always present the same face to a spectator placed at the centre of the earth, on condition that the plane of her equator passed through the centre of the earth. None of these conditions being exactly fulfilled, a small portion of the moon's surface in the E. and W. edges, and also in the N. and S., is alternately visible and invisible. The maximum L. longitudinally is 7° 45' and latitudinally 6° 44'. There is also a small L., maximum 57', which depends upon the observer's position on the earth, and which is known as the diurnal L. See **MOON**.

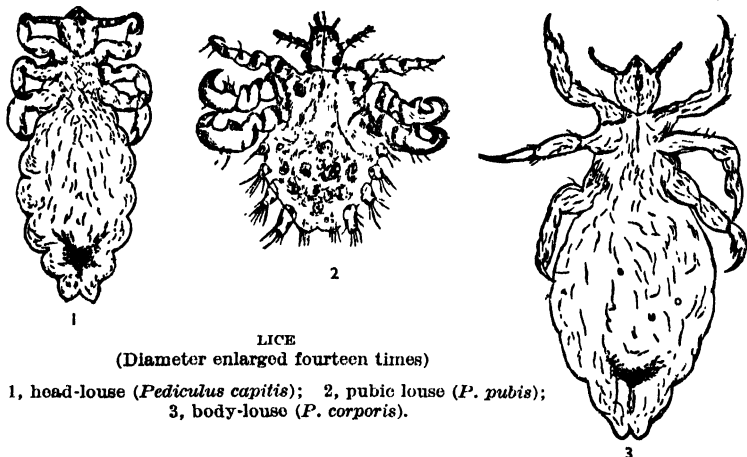
**Libretto** (dimin. of *It. libro*, a book), text of a dramatic vocal work, especially an opera. The author of such a text is called the librettist. Some of the more famous Italians who composed operatic libretti were Rinuccini, who collaborated with Peri, Caccini, Monteverdi, and Gagliano; Apostolo Zeno, who lived in Vienna and Venice as court poet; Metastasio, whose texts were set by many important composers down to and including Gluck and Mozart; Lorenzo da Ponte, the author of Mozart's *Le Nozze di Figaro*, *Don Giovanni*, and *Così fan tutte*; Romani, associated with Bellini and Donizetti; Boito and Plave (with Verdi); Illica and Giacosa (with Puccini). Among the French, Quinault as Lully's librettist was famed for a cent. and a half; Scribe wrote texts for Meyerbeer, Halévy, Auber, Boieldieu, and Verdi. Wagner was his own librettist. Hugo von Hofmannsthal collaborated with Richard Strauss in most of that composer's more celebrated stage works, including *Elektra*, *Rosenkavalier*, *Ariadne auf Naxos*, *Die Frau ohne Schatten*, and *Arabella*.

**Libreville**, tn of Gabon, Fr. W. Africa, is situated on the N. shore of the Gabon estuary. It is the cap. of the Fr. settlements in the Gulf of Guinea and was founded in 1849. It has a shipping industry. Pop. (1942) 6178.

**Libya and Libyan Desert**, anct Gk name for the N. part of Africa, including Egypt; Homer mentions the land as very fertile. In Rom. hist. the name applied only to the region now known as the Libyan Desert, a huge plateau rising gradually to 1000 ft above the Nile in stony terraces. The present L. lies along the N. coast from Tunis to Egypt and comprises Tripolitania and Cyrenaica. The coastline is 1100 m. and the area 680,000 sq. m.

There are sev. famous oases, the largest being Kharga, easy of access from Abydos and Thebes; others are Dakel, Farafra, Bahariet, and Siwah; they are well supplied with springs and are exceedingly fertile; their occupation goes back to remote antiquity. Further to the W. the Libyan Desert mingles with the trackless silence of the Sahara. L. was annexed by Italy, following war with Turkey, in 1911. In the course of operations (which relied mainly on the naval blockade of Tripoli) Benghazi was captured by Gen.

the U.K. £1,000,000. France, Turkey, and Egypt provided £30,000 for development. Total revenue, including grants in aid but not development funds, was estimated in 1956 at £9,816,405. In the Mediterranean zone of L. fruits, cereals, and dates are produced; tobacco, salt, leather goods, and carpets are other products. Pop. about 1,100,000. See R. A. Bagnold, *Libyan Sands*, 1935; D. Campbell, *Camels through Libya: a Desert Adventure from the Fringes of the Sahara to the Oases of Upper Egypt*, 1935; J. Despois, *La*



LICE  
(Diameter enlarged fourteen times)

- 1, head-lice (*Pediculus capitis*); 2, pubic louse (*P. pubis*);  
3, body-lice (*P. corporis*).

From 'Clinical Methods' (Hutchinson and Rainy), by courtesy of Cassell & Co. Ltd

Ameglio (20 Oct.). This was followed a few days later by the fall of Derna. By the end of the year Italy was in formal possession of all the coast tns of Turkish N. Africa and then organised an expeditionary force for a movement into the desert interior. The 'pacification' of the Arab tribes was eventually accomplished by Gen. Graziani (q.v.), who employed methods of the utmost brutality. L. became a major theatre of operations in the Second World War (see AFRICA, NORTH, SECOND WORLD WAR, CAMPAIGNS IN). After the war a Brit. military administration was estab. until such time as the U.N. could decide on the future of L. In 1949 Cyrenaica achieved independence under the rule of the Emir sayyid Idris al-Senussi. In 1951 L. became an independent state. A treaty of friendship and alliance between the U.K. and L., associated with financial and military agreements, was signed on 29 July 1953. On 9 Sept. 1954 an agreement between the U.S.A. and L. was entered into regarding military and air bases, use of which was refused to Britain by L. during the Suez Canal crisis in 1956. Grants in aid for 1956 amounted to £2,750,000. In addition the U.S.A. allocated £3,214,285, and

*Colonisation italienne en Lybie. Problèmes et méthodes*, 1935; K. Holmboe, *Desert Encounter: an Adventurous Journey through Italian Africa*, 1936; M. Moore, *Italy's Fourth Shore: Italy's Mass Colonisation of Libya*, 1940.

Licata, or Alicata (anot Phintias), seaport in Sicily (q.v.), on the S. coast, at the mouth of the Salso, 24 m. SE. of Agrigento (q.v.). Here Regulus (q.v.) defeated the Carthaginians in a naval battle in 256 BC. U.S. troops landed here during the invasion of Sicily in 1943 (see ITALIAN FRONT, SECOND WORLD WAR CAMPAIGNS ON). There is a trade in sulphur. Pop. 36,400.

Lice, parasitic insects without wings, including the Aptera, with the exception of the fleas. Among the distinct groups are human L. (*Pediculidae*), true L. (*Haemaphysina*), bird L. (*Mallophaga*), and epidermis eaters (*Trichodectes*). Three kinds of human louse are common in England. There is the head-lice, which makes the scalp its home and pasture-ground; the crab-lice, which chiefly occupies the hairy part of the pubes; and

the hairs of their respective hunting grounds. The body-louse deposits its eggs not only on the small hairs of the skin, but also on the clothes. The nits are firmly stuck to the hairs or clothing by a sort of cement, and are usually not very easy to detach. Nits take about a week to hatch, and the young reach maturity in about a fortnight after birth.

The presence of *L.* is generally made known by the intense irritation of the skin which they provoke. As a result of the consequent scratching, surface infection is common, and neighbouring lymphatic glands may become swollen and tender. Fortunately pediculosis, as a louse-infested condition is called, is amenable to treatment if it be carried out persistently and with assiduity. In the case of the head-louse and the pubic (crab) louse, the first thing is to cut as short as possible the hairs of the affected region. Twice daily, until all trace of these nauseous insects has disappeared, the shortened hair should be thoroughly combed with a fine-toothed comb. After the combing the parts should be vigorously scrubbed with warm water and Derbac soap, or, if this is difficult to obtain, coal-tar soap. The skin, having been dried by thorough rubbing with a towel, a little perchloride of mercury lotion, of a strength 1 in 2000, should be well rubbed in. Lastly ammoniated mercury ointment may usefully be applied. The whole of these procedures should be carried out systematically, twice daily, until not a louse or nit can be found. The body-louse presents a somewhat more complex problem. To begin with all bed-clothing and all linen that has been in contact with the skin should be baked in a disinfecting apparatus or be boiled in water. Twice a day the whole surface of the body should be vigorously washed with coal-tar soap and warm water containing a generous allowance of washing soda. Before the washing it is a good plan to rub into the skin—at any rate of those parts notably affected—an equal mixture of olive oil and common lamp paraffin, the warm water and soap being used some 10 min. later. Half-hearted or irregularly applied treatment is useless whereas regular and persistent treatment is invariably successful—though a measure of patience may be called for. Infestation with *L.* is likely to occur in conditions of overcrowding and where washing facilities are deficient. The insecticide D.D.T. dusted into clothing and on the bodies of those exposed to infestation is a most valuable preventive measure. Its efficacy was proved among the troops in the Second World War.

**Licences and Licensing Law.** The Eng. licensing code is a body of laws the primary object of which is the control of the liquor traffic. Practically the whole law in England on the acquisition, retention, and forfeiture of the right to sell to the public intoxicating liquors, subject to a payment to the state in the form of excise licence duty, and the performance of various conditions, is now contained in the Licensing (Consolidation) Act, 1910,

and the Licensing Act of 1921. The Act of 1910 does not apply to Scotland, but the law applicable to that country is practically the same in principle.

The basis of Eng. licensing law is the control of the sale of liquor by granting licences (generally speaking) only to persons who have obtained a justices' licence authorising them to hold an excise licence. Justices' licences are available only for 1 year, and must be annually renewed at the licensing sessions. There is no right of appeal from a refusal, except in the case of old licences, when an appeal lies to quarter sessions. A licence may be forfeited by the holder if convicted of permitting premises to be used as a brothel, harbouring thieves, allowing seditious meetings to be held on the premises, selling or exposing liquor he is not authorised to sell, permitting gaming, or allowing bad characters to resort to the house, and other serious offences. It is a fundamental condition of the grant of a licence that liquor be sold only upon the premises and during certain hours. The Licensing Act of 1921 abolished the old-time 'closing hour,' but limits the sale of liquor to what are called 'permitted hours,' and thus leaves the publican free to keep his premises open for the sale of food and non-intoxicants at any hour of the day or night.

By the present law justices at the general ann. licensing meeting have, within certain limits, the power of determining the hours during which the sale of intoxicating liquor on the licensed premises is permitted within their dist. on weekdays. The hours of sale, or 'permitted hours,' must be, on weekdays, 8 hours in ordinary dists. and 9 hours in the metropolis, subject to the proviso that in any licensing dist., if they are satisfied that the special requirements of the dist. make it desirable, the justices may substitute 8½ for 8 hours. The justices in any dist. outside the metropolis may extend the permitted hours, in their discretion, to 8½ hours a day, provided that no sale shall take place earlier than 9 o'clock in the morning or later than 10.30 at night, and that there shall be a break of at least 2 hours in the afternoon. In the metropolis the permitted hours may, in the justices' discretion, continue until 11 p.m. On Sundays, Christmas Day, and Good Friday the permitted hours are 5 only, of which not more than 2 shall be between 12 noon and 3 p.m., and not more than 3 between 6 p.m. and 10 p.m. In Wales and Monmouthshire there are no permitted hours on Sundays. These regulations apply both to on-licences and off-licences.

The Licensing (Consolidation) Act, 1910, contains important provisions regarding the sale or supply of intoxicating liquor to children and young persons. Contraventions are punished by a fine of £1 for a first and £2 for a second or any subsequent offence. The Act of 1921 provides that no one may sell or supply liquor from a van, barrow, or basket, unless the liquor has been previously ordered and



the quantity and price, together with the name and address of the person to whom it is to be supplied, have been entered in a delivery book carried by the deliverer, and in a day book kept on the premises. Under the same Act, too, no person may sell or supply to any person, as the measure of intoxicating liquor for which he asks, an amount exceeding that measure—commonly known as the 'long pull.' Conviction for either of these last two mentioned offences may entail a fine up to £30. Imprisonment may be given as an alternative, together with forfeiture of the licence, or confiscation of the liquor, or unlimited disqualification to hold a licence again. There are also a number of regulations as to the sale of liquor in clubs. Under the Licensing Act, 1921, a club in which the sale of intoxicants is made only as part of a meal may sell intoxicants for the space of 1 hour after the close of the permitted hours for the dist., and where liquor is supplied during permitted hours a further half-hour is allowed to the member for the consumption of that liquor, provided it is taken with a meal. Under the Licensing Act of 1949, bottle parties may not serve drinks after 2 a.m.

Generally speaking, a retailer cannot obtain an excise licence until he has been granted a licence by the justices at brewster sessions—i.e. the special ann. meetings of the local justices held for the purpose of granting or renewing licences—authorising the grant to him of an excise licence. The grant of a new justices' licence by the licensing justices must be confirmed by the 'confirming authority' (or sessions), who may refuse to confirm even if the grant is unopposed; but it is essential that those who occupy the position of a confirming authority should not only be unbiased, but so related to the matter as to be free from any reasonable suspicion of bias (Lord Hewart, L.C.J., in *R. v. Sheffield Confirming Authority*, 1937). The applicant for a manufacturer's or dealer's licence requires no authorisation from justices. Again retail liquor licences for the following places can be obtained from an officer of customs and excise without previous authority from the justices—theatres, passenger vessels, railway restaurant cars, and naval and military canteens; while occasional licences are authorised by consent of a petty sessional court.

Manufacturers' licences relate to either spirits, beer, or sweets, and expire on 30 Sept. each year. The penalty for manufacturing spirits, beer, or sweets without a licence is £500. A distiller, rectifier, or compounder of spirits must take out a licence annually. Spirits means any fermented liquor containing a greater proportion than 40 per cent of proof spirit. Beer includes ale, porter, spruce beer, black beer, and any liquor made or sold as a description of, or as a substitute for, beer, and which, on analysis, yields more than 2 per cent of proof spirit. Sweets is liquor made from fruit and sugar that has undergone a process

of fermentation; it includes Brit. wines, 'made wines,' and metheglin. Licences for wholesale dealers in spirits, beer, wine, or sweets must also be taken out annually. Occasional licences are granted for cricket matches, flower shows, galas, and similar festivities.

The penalty for dealing without a licence is £100. Retailers' licences are either on-licences, i.e. for sale of liquor for consumption *either on or off the premises*, or off-licences, for consumption *off the premises* only. The term 'publican's licence' is exclusively appropriated to a retailer's on-licence for spirits, and the expression 'fully licensed premises' means premises to which a publican's licence is attached. A person who holds a publican's licence may sell by retail beer, cider, wine, and sweets, as well as spirits, without taking out any further retailer's licence. The penalty for selling by retail without a licence is either £50 or a sum equal to treble the full duty.

A reduction in duty is allowed in the case of (a) fully licensed premises and beerhouses of an ann. value exceeding £500; (b) hotels and restaurants; (c) premises used for any purpose to which the holding of a licence is merely ancillary, e.g. theatres, law courts, public gardens, picture galleries, and exhibitions; (d) refreshment rooms at a railway station. *See also LIQUOR CONTROL.*

Lichen, medical term for skin diseases characterised by papular, i.e. nodular, and follicular, i.e. connected with a follicle (q.v.), eruptions. *See SKIN, Diseases.*

Lichens, Lichenes, special group of lowly plants, usually classed as a secondary sub-division of fungi (q.v.); consisting of over 16,000 species, about 2000 of which are British, resistant to extremes of heat and cold and probably more widely distributed than any other form of plant life. Each lichen is a self-supporting symbiotic association of a fungus and an alga; the fungus propagating by spores, to envelop, protect, and supply the alga with moisture; while the alga multiplies by division, and manufs. food for the whole lichen by absorbing carbon dioxide from the air, which is built up under the influence of light into starch or lichenin. Vegetative reproduction is also possible by broken-off parts of the thallus forming new plants, or by tiny masses of algal cells and fungal hyphae (soredia), or by tiny outgrowths of the thallus (isidia). L. are mostly xerophytes, and are common on rocks, walls, and the bark of trees, sometimes with a bad effect on the growth of trees by their interference with growth functions and their harbouring of pests. Some L. are of economic value, such as *Rocella*, yielding cudbear, litmus, orchil, orseille, and other colouring substances; *Cetraria islandica*, Iceland Moss, valued for food; and *Cladonia rangiferina*, the Reindeer Moss so important in Lapland and arctic regions. Arctic L. have proved life-saving foods for explorers who have exhausted their

provisions more than once. The grey-branched lichen (*Claydonia cornucopioides*) is used by florists in floral designs. See G. Massee, *British Fungi*, 1911, and H. Gwynne-Vaughan and B. Barnes, *The Structure and Development of the Fungi*, 1937.



**Lichfield**, municipal bor. and cathedral city of Staffs., England, lying in the valley of the Trent, 15 m. SE. of Stafford. The cathedral, in the Decorated style, dates from the 12th cent. and has a valuable library. It is the only Eng. cathedral with 3 spires. Together with many interesting monuments and memorials it contains a masterpiece by Chantrey, 'The Sleeping Children.' The city has a wealth of historical and literary associations—Dr Samuel Johnson (compiler of the first full-length Eng. dictionary) was b. here in 1709 and educated at its grammar school, with Addison and Garrick (q.v.). Johnson's bp. is now a museum containing many exhibits of great interest to visitors. On the edge of the beautiful Stowe Pool is the church and well of St Chad, who settled there in 669, and became the first bishop of L. Pop. 11,000.

**Lich-gate**, or **Lych-gate** (from O.E. *lich*, a corpse), roofed gateway (at the entrance to a churchyard), beneath which the bier carrying a corpse could be rested pending the arrival of the priest to conduct the burial service.

**Licht**, see **LITCHI**.

**Lichnowsky, Karl Max, Prince** (1860–1928), Ger. diplomat, b. Kreuzenort. He entered the diplomatic service and in 1912 was appointed ambas. to Great Britain. The revelation of Ger. policy after the Sarajevo murders of 1914 came as a shock to him, and he privately printed a pamphlet called *Meine Londoner Mission, 1912–14*, which one of his friends pub. without his consent in 1918, with the result that L. was expelled from the Prussian Upper House and fled to Switzerland. Fuller revelations of his attitude may be found in his book trans. into English as *Heading for the Abyss*, 1928.

**Lichtenberg, Georg Christoph** (1742–99), Ger. philosopher and satirist, b. near Darmstadt. He frequently visited England and gathered materials for his famous explanations of Hogarth's (q.v.) pictures,

*Ausführliche Erklärung der Hogarthischen Kupferstiche*, 1794–9. His work includes philosophical essays, witty burlesques, satirical writings, and physical investigations, especially into electricity. His *Gesammelte Schriften* (14 vols.) appeared in 1844–53, his *Briefe*, 1901–4, and his *Aphorismen*, 1902–8. *Briefe aus Lichtenbergs englischen Freundeskreis* were ed. by H. Hecht in 1925. See R. M. Meyer, *Swift und Lichtenberg*, 1886, and P. Requaadt, *Lichtenberg*, 1948.

**Lichtenstein**, Ger. tn in the dist. of Karl-Marx-Stadt, 14 m. WSW. of Karl-Marx-Stadt (q.v.). It is in a coal-mining area and has a textile industry. Pop. 15,000.

**Licinius (Flavius Galerius Valerius Licinianus)**, Rom. emperor (AD 307–24), b. of peasant family in Dacia or Illyria, c. 250. He was raised to the rank of Augustus by Galerius, upon whose death in 311 he became sole ruler of the eastern provs. He defeated Maximinus in 314, but was himself defeated by Constantine in 315 and again in 323. In this latter year he was deprived of his throne and put to death in 324. See Gibbon, *Decline and Fall*, xiv.

**Lick Observatory**, on Mt. Hamilton, California, U.S.A., was built at a cost of \$140,000 according to the bequest of James L. (1796–1876), an Amer. financier and philanthropist. It stands at an altitude of 4209 ft. and contains the vault of its founder. The observatory now belongs to the Univ. of California. Its 120-in. reflecting telescope enables observation at 900,000,000 light-years distance.

**Licking**, riv. in Kentucky, U.S.A., rises in the E. of the state, flowing NW. to the Ohio, which it joins opposite Cincinnati. It is 320 m. long and navigable for 70 m.

**Lictors**, attendants on Rom. magistrates, before whom they bore the fasces (q.v.). They were generally persons of humble origin. Their town dress was the toga; but in triumphal processions they wore a red coat, and at funerals black. Their duties were to clear the way, and also, at one time, to inflict corporal punishment and carry out executions.

**Liddell, Henry George** (1811–98), famous as the collaborator, with Dean Scott, in the compiling of the *Gk Lexicon*. From 1846 to 1855 he was headmaster of Westminster School, dean of Christ Church from 1855 to 1891, and vice-chancellor of Oxford, 1870–4. Besides the valuable *Lexicon* he wrote a *History of Rome*, 1855.

**Liddesdale**, or **Lidedale**, beautiful dist. of the Eng.-Scottish border, is the valley traversed by Liddel Water, a union of small streams which flows through Roxburghshire from the SW. of the Cheviot Hills and joins the Esk 12 m. N. of Carlisle. In the valley is Hermitage Castle, a massive 13th-cent. stronghold.

**Liddon, Henry Parry** (1829–90), divine, b. N. Stoneham, Hants. Appointed prebendary of Salisbury Cathedral in 1864. In 1870 became canon-residentary of St Paul's Cathedral, and Ireland prof. of exegesis at Oxford. His sermons, lectures, and writings, all of a High Church

tendency, had a remarkable influence on the religious thought of the period. At the time of his death he was engaged on a life of Dr Pusey, which was finished by other hands and pub. in 1893-4. See J. O. Johnston, *Life and Letters of Henry Parry Lidford*, 1904; also life by G. W. E. Russell, 1905.

Lidford, see LYDFORD.

Lidford Law, an O.E. proverb, ran:

'First hang and draw,

Then hear the cause by Lidford law.'

The term thus came into use to mean hang a man first and try him afterwards. The theory is that it arose from the very arbitrary procedure of the Stannary courts in the Devonshire tn of Lidford.

Lidgett, John Scott (1854-1953), Methodist Church leader and social reformer, b. Lewisham. He entered the ministry by way of Univ. College, London, and for 14 years was minister in Methodist circuits. One-time vice-chancellor of London Univ.; associated with Hugh Price Hughes in the movement for the improvement of the industrial classes. He will, however, be best remembered as the man who, in 1890, in conjunction with Dr Moulton, founded the Bermondsey Settlement, of which he held the wardenship from 1890 to 1949, and also as the guiding spirit in the movement which resulted in the union of the 3 Methodist denominations, of which he became the first president.

Lidice, Czechoslovak mining vil. in the region of Prague (q.v.), E. of Kladno (q.v.). During the Second World War it was the scene of a notorious Ger. reprisal after the assassination of Heydrich (q.v.), the Protector of Bohemia and Moravia. The Germans alleged that the vil. had aided the men who killed Heydrich, and, in consequence, on 10 June 1942, the male inhab., numbering 172, were shot; the women were either shot or sent to concentration camps, where many d.; and the children were sent to concentration camps, or, in some cases, to foster homes in Germany. The vil. itself was systematically destroyed, the ground was ploughed up, and the name of L. was erased from official records. Later the small vil. of Lezaky, near Chrudim (q.v.), suffered a similar fate.

In remembrance of L., many places abroad, including a co. of Quebec, took its name. The first house of a new vil. of L., planned at Columbia Univ., was occupied in 1949. Pop. about 200.

Lido (It., 'shore'), It. is., 7½ m. long and very narrow, separating the lagoon of Venice (q.v.) from the Adriatic. It is a fashionable holiday resort with a splendid beach, and is connected to Venice by ferries. The term L. is popularly applied to bathing resorts in many countries.

Lido di Roma, see OSTIA.

Lidzbark Warminski (Ger. Heileberg), tn of Poland, in Olaszyn prov., on the Lyna, 25 m. N. of Olaszyn (q.v.). It was the seat of the bishops of Ermland, 14th-18th cents. During the Second World War there was much damage. Pop. 5000.

Lie, Jonas Laurits Idemil (1833-1908), Norwegian novelist, b. Elker, near Drammen. At first a lawyer, he devoted himself to literature as a result of a bankruptcy. In 1866 he pub. a vol. of poems, and in 1870 his first novel, *Den Fremmsynte* (Eng. trans., *The Visionary*, 1894), a melancholy romance which made him famous. He spent his time thereafter between Italy, Germany, Paris, and the Tyrol, not finally returning to Norway until 1891. During these years he pub. *Tremasleren Fremtiden*, 1872 (Eng. trans., *The Barque 'Future'*, 1879); *Lodsen og hans Hustru*, 1874 (*The Pilot and His Wife*, 1874, 1879), his first really great novel; *Faustina Strozzi* (a verse drama), 1876; *Rulland*, 1881; *Gaa paa*, 1882; *Livsslaven*, 1883; *Malstroem*, 1885; *Niobe*, 1894; *Dyre Rein*, 1896; *Fasti Forland*, 1899; and many others. He excels in descriptions of Norwegian middle class life, and he has been called 'the writer of the home.' He has also dealt successfully with the fantastic and the demonic forces in life. His output has been considerable, but uneven. See E. Lie, J. Lie, *En livsskildring*, 1933; F. Paasche, J. Lie, 1933; A. Gustafson, *Six Scandinavian Novelists*, 1940.

Lie, Marcus Sophus (1842-99), Norwegian mathematician, b. Nordfjordeid, near Bergen. He was educ. at the univ. of Christiania, where a special chair of mathematics was created for him in 1872. In 1886 he was appointed prof. of geometry at Leipzig. He pub. *Theorie der Transformationsgruppen*, 1888-93, and *Vorlesungen über Differentialgleichungen mit bekannten Infinitesimalen Transformationen*, 1891. He was a foreign member of the Royal Society.

Lie, Trygve (1896-), Norwegian lawyer and statesman, b. Grorud, near Oslo, and educ. at Oslo Univ., practised as a barrister. He joined the Norwegian Labour party in 1919, and later became its legal adviser. From 1935 he served in the Norwegian Gov., being successively minister of justice, commerce, and supply, and becoming minister of foreign affairs in the exiled gov. in London in 1941. This office he held until 1946, when he resigned on being appointed the first secretary-general of the U.N. Assembly. His firm leadership did much to estab. the prestige and effectiveness of U.N. in its early years; but he resigned in Nov. 1952. His strong support for U.N. action in Korea in 1950 was openly resented by the Soviet bloc, and by 1952 his position was becoming increasingly difficult, although he had in fact been re-elected for a further 3 years in 1951. He was succeeded, 1953, by Dag Hammarskjöld (q.v.). He wrote an account of his U.N. experiences, *In the Cause of Peace*, 1954.

Lieber, Thomas, see ERASTUS.

Liebermann, Max (1847-1935), Ger. painter and etcher, native of Berlin. He was a pupil of Steffek, and in 1869 studied at the School of Art at Weimar. He worked in Paris, 1873-8, acquiring something of the Impressionist outlook. Typical subjects, showing the influence of

J. Israels (q.v.), are of humble folk in the vils. and fields of Holland, besides factory life in Germany. Some of his finest paintings are 'Flax Spinners' (Berlin National Gallery), 'The Woman with Goats,' 'An Asylum for Old Men,' and 'Labourers in a Turnip Field.' See lives by M. J. Friedländer, 1924, and H. Ostwald, 1930.

Liebhard, Joachim, see CAMERARIUS.  
Liebig, Justus, Freiherr von (1803-73), Ger. chemist, b. Darmstadt. At an early age he displayed a love of natural science, and in 1819 was sent to the univ. of Bonn, going from there to Erlangen, where he took his doctor's degree in 1822, publishing a paper on fulminating mercury the

most of which have been trans. into English and French. See J. Vogel, *Liebig als Begründer der Agriculturnchemie*, 1874; A. W. Hofmann, *The Life-work of Liebig in Experimental and Philosophic Chemistry*, 1876; W. Ostwald, *Grosse Männer*, 1909; and lives by R. Blunck, 1938, and R. Schenk, 1941.

Liebig's Condenser, apparatus used to convert a vapour into the liquid state by cooling with the aid of water. There are sev. other kinds of condenser all founded on the same principle—vapour passing through a tube and being cooled by water; but L.'s C. is convenient when larger quantities of a liquid are to be distilled. The apparatus consists of a glass tube enclosed in a jacket through which a constant stream of cold water is passed. The liquid to be distilled is contained in a distilling flask provided with a side tube, which is passed through a cork in the condenser. In the neck of the flask a thermometer is supported by a cork, so as to enable the boiling-point of the liquid to be determined.

Liebknecht, Karl (1871-1919), Ger. socialist, son of Wilhelm L. (q.v.). He practised at the Berlin Bar. His outspoken anti-militarism and socialism led to his expulsion from the Reichstag, 1916; he was sentenced to 4 years' penal servitude for 'attempted high treason,' and released in Oct. 1918. He led the Spartacist rising in Berlin, was arrested Jan. 1919, and was shot dead by his guards, who said that he had tried to escape. His fellow prisoner, Rosa Luxemburg (q.v.), was killed at the same time.

Liebknecht, Wilhelm (1826-1900), Ger. socialist, b. Giessen. Imprisoned for his share in the Baden revolt of 1848, he escaped, going first to Switzerland, then to London, where he worked for Ger. newspapers and associated with Marx and Engels. In 1862, after the amnesty, he returned to Germany, but was banished from Berlin and Prussia for socialist agitation. In 1864 he entered the N. Ger. Parliament, and in 1868 began to edit, with Bebel, the *Demokratisches Wochenblatt*; an attack on Bismarck in its pages led to their imprisonment for 2 years. On his release L. entered the Reichstag, remaining a member almost uninterruptedly for 25 years. He ed. the Berlin *Vorwärts*, and in 1895 was imprisoned for 4 years on a charge of *lese-majesté*. He pub. sev. works. See life by K. Eisner, 1900.

Liebler, Thomas, see ERASTUS.

Liechtenstein, European principality in the Alps, bounded on the E. by the Austrian prov. of Vorarlberg, and on the W. by the Rhine, which separates it from Switzerland. It was formed in 1719 out of the 2 countships of Vaduz and Schellenberg, and was closely associated with Austria-Hungary until the dissolution of the monarchy. It remained neutral during the Second World War. L. is governed by a prince and a diet of 15 members, and is attached to Switzerland for monetary, customs, postal, and diplomatic purposes. There are textile, leather,



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same year. He then went to Paris, where he made the acquaintance of Humboldt and Gay-Lussac. At the recommendation of the former he was made prof. of chem. at the univ. of Giessen, where he attracted students from all parts of Germany and other European countries. In 1852 he became a prof. of chem. at Munich. At the outset of L.'s career chem. was in its infancy, but at the time of his death it had developed beyond all expectations. He estab. the first laboratory where students could receive thorough practical training, and introduced the well-known method of organic analysis. One of his favourite branches of research was the phenomena of animal and vegetable life, and he was the first to prove that the activity of physical and chemical forces is the same in the organised as in the mineral world. He caused great developments in agriculture by the use of fertilisers, and invented meat extract and baby food. His prin. work was *Chemistry in its Application to Agriculture and Physiology*, 1840, and he also wrote *Animal Chemistry, or Chemistry in its Application to Physiology and Pathology*, 1842; a *Dictionary of Chemistry*, 1837, *Familiar Letters on Chemistry*, 1844, and *Researches on the Chemistry of Food*, 1847;

pottery, and household manufs., and cattle, pigs, and poultry are raised. Irrigation canals have recently been opened. The cap. is Vaduz (q.v.) and there are 10 vils. Area 85 sq. m.; pop. 13,600. See E. Hinderer, *Reiseführer für Liechtenstein*, 1935, and H. Hiltbrunner, *Fürstentum Liechtenstein*, 1946.

**Liedekerke**, small tn in the prov. of Brabant, Belgium, 12 m. W. of Brussels. Pop. 8900.

**Lieder**, see GERMAN AND AUSTRIAN MUSIC.

**Liège** (anct Leodium; Flem. Luik; Ger. Lüttich): 1. Prov. of E. Belgium, almost bisected by the R. Meuse, and bounded on its E. side by Germany. This prov. offers very different aspects. Coal is found along the Meuse valley, where subsequently the iron and glass industries were centred. In its S. part are extensive quarries of freestone. Phosphate of lime abounds in the fertile Hesbaye plateau, where sugar-beet is the most important crop and where the refineries are situated. In the NE. is rich grassland and the breeding of horses, cattle, and pigs is carried on. In the SE. rises the high plateau of the Ardennes with the highest point of this prov. and of Belgium, the Botrange (2275 ft.). The wool industry is highly concentrated in the Vesdre valley round Verviers. Since the 10th cent. L. has been a mighty eccles. principality. In 1795 it came under France. In 1815 it was given to Holland, and it became a prov. of Belgium in 1830. The inhab. are mainly Walloons. In 1920 the Ger. dists. of Eupen and Malmédy were ceded to Belgium and incorporated in the prov. of L. (see EUPEN). Area 1525 sq. m.; pop. (1955) 994,185.

2. Cap. of the above prov., on the R. Meuse, almost opposite the valleys of the Vesdre and Ourthe, 54 m. SE. of Brussels. It is one of the most important cities of Belgium and has a pop. of 155,000 (1955). Together with its suburbs, Angleur, Ans, Bressoux, Chénece, Grivegnée, Herstal, Jemeppe, Jupille, Montegnée, Ougrée, St Nicolas, Seraing, and Tilleur, there live 372,000 people on about 43 sq. m. The city itself contains many interesting old churches dating from the 10th, 11th, and 12th cents. The cathedral (formerly St Paul's Church) was rebuilt in the 13th cent. The chief secular building of L. is the magnificent old palace of the prince-bishops. It dates from the 10th cent., was ravaged sev. times by fire, and rebuilt for the last time in the 16th cent. The edifice covers an area of about 17,400 sq. yds and accommodates at present the prov. gov., the law court, and the archives. L. has a univ. founded in 1817, sev. interesting museums, and a conservatoire. Two forts of its anct fortifications remain, and it is a bishop's see. It is the bp. of Grétry, a famous Belgian composer. Among the products of its intensive hardware industry the chief is firearms. Other manufs. are zinc, machinery, textiles, caoutchouc, and sugar. Situated on a navigable riv. linked by the Albert Canal with Antwerp and junction of

international railways, L. is an important trade and transportation centre.

**Liège, Siege of** (Aug. 1914). The Ger. war plan for an offensive against France envisaged the violation of Belgian ter. in order to give their right wing sufficient space in which to swing round and eventually envelop the Fr. left. L. was protected by a ring of outer forts all of pre-1914 design and armament. The Ger. force entrusted with the siege was under the command of Gen. von Emmich (q.v.) and one of his staff officers was Ludendorff (q.v.). The Germans crossed the frontier on 4 Aug. 1914, and met with considerable opposition from the Belgians. Eventually each fort fell, crumbled by the huge howitzers of the Germans, which, till then, had been a secret. Ludendorff, on his own initiative, had collected the scattered remnants of companies and regiments and organised them into a fighting force. He was then given command of a brigade, with which he broke through the interval between Forts de Fléron and d'Évegnée and reached La Chartreuse. Soon the girdle of forts was pierced and L. was entered on 7 Aug. 1914. Some forts, although completely surrounded, continued to resist, under the heroic command of Gen. Leman, until 14 Aug., when his H.Q., the fort of Loncin, occupied by 300 men, was blown up. The delay, however, caused by the Belgian stand proved invaluable to the Allies (see FORTIFICATION; FRANCE AND FLANDERS, FIRST WORLD WAR CAMPAIGN IN).

**Second World War** (May 1940). As L. was again a key position at the end of the strategical Albert Canal, its fortifications were completely rebuilt and modernised. A second time the defending troops had to withdraw, on 13 May, threatened with encirclement by Ger. units, which had crossed the canal to the N. The forts, however, resisted again as long as possible and gave no rest to the advancing Germans. The fort of Pepinster continued firing until 29 May, the day after the capitulation of the Belgian Army. After its liberation on 8 Sept. 1944, L. and its suburbs suffered much from flying bomb and rocket attacks. See also FORTIFICATION; FRANCE AND FLANDERS, SECOND WORLD WAR CAMPAIGN IN.

**Liegnitz**, see LEGNICA.

**Lien**, right to retain the goods of another pending payment of a debt due either in respect of the goods retained, or on a general account between the parties. L.s are either possessory, maritime, or equitable. Possessory L.s are divided into (a) *particular*, i.e. giving a right to retain the *particular* goods in connection with which the debt arose. Such a L. may be provided for by express agreement, or it may be implied. The law implies a L. where skill has been exercised on the goods, or the creditor has been compelled to receive them. Examples of particular L.s are those of an innkeeper over his guest's luggage for payment of board and lodging, a shipowner over the cargo for his freight, a common carrier for goods carried, a wharfinger for goods

warehoused, and the unpaid vendor's L. under the Sale of Goods Act. (b) *General*, i.e. with a right to retain not only for the debt arising in connection with the goods retained, but for a *general* balance of account. Such a L. arises either from trade custom (*see* CUSTOM) or express agreement. Bankers, solicitors, dyers, factors, and stockholders have the right to exercise a general L. A possessory L., generally speaking, carries with it no right to sell the goods retained unless such right is conferred by statute. Innkeepers and wharfingers may sell, and so may the unpaid vendor.

Maritime L.s include those of seamen for their wages, a master for his wages, and disbursements in and about the cargo, a salvor, the owners of a ship which has been damaged in colliding with another ship by the default of the latter, and a bottomry bondholder (*see* BOTTOMRY). The right is exercisable over the ship and its cargo, and far from depending on the possession of the thing over which it exists, as in the case of a possessory L., it is said to follow the thing wherever it goes. Among conflicting maritime L.s priority is given in the inverse order to that in which they arose.

Equitable L. exists independently of possession, and is in the nature of a right arising out of a trust created by agreement, express or implied; for example, the L. of a trustee on trust property for his costs and expenses, of a vendor of land for unpaid purchase money. L. may be lost by surrender of possession.

Liepaja (formerly Russian Libava, Ger. Libau), tn in the Latvian Rep. on the Baltic Sea. It has metal-working and fish-canning industries, and is an important transportation centre (ice-free port, 5 railway lines). Pop. (1956) 69,000 (1913, over 100,000), Latvians and Russians—until 1940 also Germans. Known since 1263, tn 1625 (history, *see* KURLAND); there was a flourishing export trade before 1914, which declined in independent Latvia; 1952-3, cap. of L. oblast (abolished).

Lier (Fr. Lierre), tn in the prov. of Antwerp, Belgium, a charming place situated at the confluence of the Great and Little Nèthe, forming together the R. Nèthe (q.v.). Noticeable buildings are the tn hall with belfry (1269-1411), the collegiate church (1377-1455), and the Zimmertoren, containing an interesting astronomical clock and a museum. The picturesque Béguinage (convent) dates from the 13th cent. The chief manufs. are shoes, lace, embroideries, instruments of brass, and cutlery. Pop. 29,000. *See* S. Leurs and J. A. Goris, *Lier in Ars Belgica*, vol. III, Antwerp, 1935.

Liestal, or Liesthal, cap. of the half-canton of Basel-Land, Switzerland, 8 m. S. of Basel. It manufs. textiles. Pop. 7500.

Lieutenancy, Commission of, name given to the body of commissioners who take the place of a lord-lieutenant in the city of London. They are sometimes called deputy lords-lieutenant, but this is an

incorrect designation, as, although they perform the duties of a lord-lieutenant, they are commissioners appointed annually (as a rule) by the Crown; deputy lords-lieutenant, on the other hand, are appointed by the lord-lieutenant. The difference between the city of London and the rest of England is that in the former the L. is 'in commission.' It is noteworthy that under the Commonwealth the L.s of all the cos. were in commission, as Cromwell refused to recognise lords-lieutenant and appointed commissioners in their stead.

Lieutenant (Navy). In the R.N. a L. holds intermediate rank between a sub-L. and a L.-commander. A young naval officer first serves as a cadet or midshipman and then passes through the ranks of acting sub-L. and sub-L. He then qualifies in various courses of instruction, including such subjects as navigation, pilotage, and gunnery, and is then promoted to L., his seniority being according to the results of the examinations. Sub-L.s and L.s rank with L.s and captains in the army, according to seniority in their respective ranks. There are also the ranks of instructor-L. and engineer-L.

Lieutenant and Second Lieutenant (Army) (Fr. *lieutenant*, from Lat. *locum tenens*, holding the place of another), officers in the Brit. Army next in rank to a captain. The former are 'subaltern officers,' the latter 'subalterns.' The name L. is given to them because they 'understudy' the troop, squadron, or company commander, themselves commanding platoons or equivalent sub-units. Second L.s were formerly called cornets or ensigns, except those of fusilier regiments, who were called second L.s, but when an alteration was made in 1871, those appointed before 26 Aug. 1871, or from the Sandhurst 'A' list, were made L.s as from 1 Nov. 1871; those appointed after 26 Aug. 1871 were sub-L.s. The latter rank was altered in 1877 to second L., which, after being abolished from 1881 to Jan. 1887, is now in force. The duties of L.s and second L.s are identical. A L. of the army is of co-ordinate rank with a sub-L. of the navy and with a flying officer of the R.A.F.; a second L. ranks with a commissioned officer from warrant rank of the navy and with a pilot officer of the R.A.F.

Lieutenant-Colonel, *see* COLONEL.

Lieutenant-General, *see* GENERAL.

Liévin, Fr. tn in the dept of Pas-de-Calais, 14 m. SE. of Béthune, in a coal-mining dist. Pop. 28,900.

Life, *see* BIOLOGY.

'Life,' a picture news weekly of the U.S.A. including feature articles, was started by Henry R. Luce in 1936. Its circulation has been in excess of 5,000,000 since 1947, and besides the regular ed. there are an international ed. and an ed. in Sp. In 1957 it was permanently represented by correspondents in 14 bureaux in the U.S.A. and Canada and 14 bureaux overseas. It had a regular staff of 24 photographers and also commissioned free-lance photographers and writers for special projects.

**Life Assurance, see INSURANCE.**

**Life Guards, The,** premier corps of the Brit. Army, taking precedence over all other regiments. Their duty is to attend the sovereign, as their title shows, 'life' being a corruption of the Ger. *Leib*, body, the L. G. thus being the bodyguards of the sovereign. The L. G. were originally composed of separate troops which were not regimented as the 1st and 2nd L. G. until 1788. The first 2 troops, raised by Charles II in exile, were linked with a third which had formed Monck's bodyguard in the Commonwealth army at the Restoration. A fourth troop raised in Scotland was added in 1661 and a fifth in 1679. Before 1788 those in the ranks of the L. G. enjoyed a special status in keeping with the origin of the troops—bands of gentlemen who served as the king's bodyguard. They fought at Dettingen, the Peninsular war, Waterloo, Tel-el-Kebir, and in S. Africa. On the outbreak of the First World War squadrons from the 1st and 2nd L. G. and the Royal Horse Guards were formed into a composite regiment for active service, and at once proceeded to France and joined the 4th Cavalry Brigade, in Gen. Allenby's div. Its first action was in the retreat from Mons; then it took part in the battle of the Marne (q.v.) and the general advance. In Oct. 1914 it moved northwards and came under Sir Douglas Haig's command, and took part in the first battle of Ypres, immediately followed by the defence of Messines. While the composite regiment was in France a Household Cavalry Brigade had been forming in England, into which were drafted officers and men of line cavalry regiments. This brigade went to the relief of Antwerp on 7 Oct. 1914, but arrived too late, and withdrew down the coast until it joined the allied forces about Ypres. On 7 Nov. the brigade won distinction by driving the Germans out of a gap they had made between Cavan's right and Demoussy's left at Klein Zillebeke. In the course of the campaign the Household Brigade, in common with all cavalry, was converted to an infantry status, and, later, organised machine-gun squadrons. Further honours were gained in many battles, notably on the Somme, at Albert, Arras, the Scarpe, Passchendaele, the Hindenburg line, and Cambrai.

In the general reduction of the army after the First World War the 1st and 2nd L. G. were amalgamated and designated 'the L. G.', and the Royal Horse Guards (the Blues) were reduced in strength. (For the services of the Household Cavalry in the First World War see Sir G. Arthur, *The Story of the Household Cavalry*, vol. iii, 1926.) In the Second World War the L. G. and Royal Horse Guards, forming the 1st Household Cavalry Regiment, served in Palestine with the 1st Cavalry Div. The unit was soon mechanised, and saw service in Iraq, Syria, N. Africa, Italy, and Europe. A second regiment, formed in 1940, fought as an armoured car unit with the Guards Armoured Div. in the liberation of Europe. After the

war the L. G. resumed their mounted ceremonial duties at Windsor and London.

**Life Insurance, see INSURANCE.**

**Life-saving and Rescue Apparatus.** Maritime practice includes rocket apparatus, lifebelts, rafts, buoys, bells, etc. The prin. means of saving life near the coasts of Great Britain is the first-named. In 1807 Capt. G. W. Manby introduced the 'mortar' apparatus, which preceded the use of rockets. By this a line was fired over the wrecked vessel by means of a mortar; in 1814 there were 45 mortar stations in England, and Capt. Manby was awarded a grant of £2000. John Dennet of Newport introduced the rocket system, and by 1853 there were 120 stations in the U.K. fitted with the apparatus. The rocket invented by Capt. Boxer was adopted in 1855; this is a combination of 2 rockets in 1 case, so that when the first rocket has carried the line as far as it can, the second adds an impetus to it, and a greater range is thereby attained. There are 5 parts to the rocket apparatus: the rocket, the rocket-line, the whip, the hawser, and the sling lifebuoy. The rocket, to which the rocket-line is attached, is fired over the wreck. The crew of the latter haul in the whip, which is an endless line rove through a block with a tail attached to it; the tail is detached and fastened to some portion of the ship high above the water, such as a mast. The hawser, to which is hung the travelling lifebuoy, is then hauled on to the wreck by the rescue party. The persons on the wreck then travel one at a time to shore in the lifebuoy. The rocket apparatus of Great Britain is the exclusive property of the Board of Trade, and is managed by the coastguard service. Next in importance comes the lifebelt. Every man engaged in lifeboat work must wear a lifebelt or life-preserver, a canvas jacket, the lining of which is stuffed with cork or with rubber material that can be inflated. The lifebelts used in lifeboat work will support a man fully clothed and a second person. The Ryder hammock, a mattress made of cork, is serviceable and will support 3 men in the water. Inflated rubber dinghies are also used.

**Life-saving service in the U.S.A.** Although this service used to enjoy a separate existence it was merged by Act of Congress of 1915 with the Revenue Cutter Service, under the general term of Coast Guard. Nevertheless in its own personnel, methods of work, and equipment it has been allowed a considerable amount of autonomy. It probably surpasses any life-saving service in the world for the amount of ground it has to cover, this being the vast coasts on the Atlantic, Pacific, and Gulf of Mexico belonging to the continental U.S.A. One peculiarity is that it also maintains 1 inland station, the life-saving fort at Louisville, Kentucky, because of the dangerous falls of the Ohio at that point. It has had a marvellous record in saving the lives of those imperilled by storms on the coasts, and in salvage of ships and property.

For life-saving from drowning see

under ARTIFICIAL RESPIRATION; HUMANE SOCIETY, THE ROYAL; SURF LIFE-SAVING; SWIMMING; from fire and in mines, etc., see RESCUE WORK.

**Lifeboat**, boat specially designed for saving life in cases of shipwreck, etc. The first insubmersible boat was built in 1785 by L. Lukin, a London coachbuilder, encouraged by the Prince of Wales, but it was not until the wreck of the *Adventure* off S. Shields in 1789 stirred up public feeling that any great interest was manifested in the question. A prize was then

right way up as soon as she capsizes, she is, in fact, more liable to capsize than the L. which cannot self-right. This, although once it goes over it has no chance of self-righting, is more stable.

In 1890 the first steam L. was completed. She was propelled, not by screws, but by a powerful pump, which drew in water through an opening in the bottom of the boat and discharged it at the sides. It could take in a ton of water in a second and drive the boat at 9 knots. Altogether 6 steam L.s were built, some



WHITEHILLS LIFEBOAT SETTING OUT

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offered for the best L., and Henry Greathead was commissioned to build a boat embodying the best points of the prize-winning plans of Wm Wouldhave and modifications suggested by members of the adjudicating committee. The principles of Wouldhave's L. were not generally adopted until the S. Shields L. capsized at the mouth of the Tyne in 1849 and 20 of her crew lost their lives. It was then that the first self-righting L. was built. The power to self-right is obtained by the 2 air chambers, or high 'end-boxes,' as they are called, which are the distinguishing feature of the self-righting L., and by a heavy keel, weighing from one-fifth to one-third of the boat's total weight. These high end-boxes, exposed as they are to the wind and the sea, make the self-righting L. less easy to handle in heavy weather; and though she will come

with pumps and some with screws. Motor L.s have now taken the place of all others. The first L. to be converted into motor power was completed in 1904 and sent to Tynemouth. She had a 12-h.p. 2-cycle motor. To-day the Royal National Lifeboat Institution maintains 155 motor L.s on the coasts of Great Britain and N. Ireland.

Through its ability to cover distances impossible for boats which depend on sails and oars, and its power against a heavy sea, the motor L. with diesel engines has been able to save lives that could never have been saved by the older boats. Fewer boats are required, as 2 boats can now safeguard a bay that once required 5 or 6. The cost, however, is greater. The first L. cost £150. To-day the largest L.s, 52 ft in length, are driven by two 72-h.p. diesel engines. Oil-spray, 2



radios, one with very high frequency radio transmission for direct communication with aircraft, loud-hailer, line-gun, and searchlight are carried. The modern motor L. costs from \$17,000 to nearly \$40,000. In addition the boathouse and launching slipway, which are as essential as the L. itself, may cost as much as or more than the boat. Only the best materials are used in the construction of a L., and each boat has to be passed as fit by an inspector before being used. The carriage of a L. is a necessary adjunct where it is necessary to launch boats at a distance from the boathouse.

The National Institution for the Preservation of Life from Shipwreck, now the Royal National Lifeboat Institution, was founded by the efforts of Sir W. Hillary T. Wilson, and G. Hibbert in 1824. Except for a period of 15 years from 1854 to 1869, when there was a small gov. subsidy, the institution has always been dependent on voluntary subscriptions. Since 1824 more than 81,000 lives have been rescued from shipwreck; nearly \$1 million a year is required to maintain the L. service. It gives rewards for rescues and attempted rescues. It compensates those injured in the service, and pensions the widows and orphans of those killed in its duties. The U.S. Life-Saving Service was introduced in 1871, and both in equipment and efficiency has reached a very high standard; it is subsidised to a great extent by Congress. The life-saving societies of both France and Germany date from 1865.

In Britain, each L. station is controlled by a local voluntary committee; usually there is one full-time member of the L. crew (the motor mechanic) at each station. Other members of the crew normally have their own occupations; many, though not all, are fishermen. The coxswain who commands the L. at sea, the second coxswain, and the bowman are 'boats' officers' and receive small retaining fees. The crew are all volunteers; rewards are paid by the Royal National Lifeboat Institution when they go out in the L., whether on service or on exercise.

L.s must be carried on board ships in sufficient number to accommodate crew and passengers. The *Queen Elizabeth* has 28 steel L.s, powered by diesel engines, fireproof and virtually unsinkable, carrying 145 passengers; equipment includes provisions, charts, radio, distillation plant, etc. Oil-tanker L.s are specially constructed to permit launching into an oil-covered sea. Launching is effected electrically, or by gravity as in the *Queen Elizabeth*.

The Second World War saw the introduction of airborne L.s to rescue air crews, and the first was used operationally in May 1943. The most efficient type is constructed of 2 mahogany skins; buoyancy chambers to ensure self-righting are inflated automatically when the L. is dropped on parachutes from the transporting aircraft. Sails and a 4-h.p. engine are provided, as well as radio, provisions, etc.

See J. R. Barnett, *Modern Motor Lifeboats*, 2nd ed., 1933; C. Vince, *Storm on the Waters*, 1946; Sir J. G. Cumming, *Literature of the Lifeboat, 1785-1947*, 1947; M. Savill, *The Adventure of the Lifeboat Service*, 1950; P. Howarth, *The Heroic Story of the Lifeboat Service*, 1956, *The Lifeboat Story*, 1957.

**Liferent**, in Scots law a right or personal servitude analogous to the Rom. *usufructus*, to use and enjoy a thing during life without thereby destroying or wasting its substance. It applies not only to heritable subjects, but also to household furniture or other things which wear out in process of time. A L. in a stocked farm would be construed to mean that the liferenter must leave the stock at the close of his period of enjoyment substantially of the same descriptive value and extent as at entry, and a L. of money would give the interest to the liferenter. L.s are divided into legal and conventional. Legal L.s comprise (a) *terce (tertia)* or right of a widow, or wife who has divorced her husband, to one-third of the husband's heritable subjects, and (b) *courtesy* or right given to the surviving husband of all his wife's heritage, provided issue of the marriage was b. alive (i.e. has been heard to cry). Conventional L.s are said to be either simple or by reservation. The former are constituted by grant by the proprietor completed by infestment; in the latter the proprietor reserves to himself a L. in the same writing by which he conveys the fee of the land to another. See W. Gloag and R. C. Henderson, *Introduction to the Law of Scotland* 1956.

**Liffey, River.** The L. is formed by 2 streams rising in the Wicklow Mts near Enniskerry. It flows through co. Kildare, past Kildcullen and Newbridge, and into Dublin Bay. In its passage through the city, which it divides into two, it is crossed by 10 bridges, of which O'Connell bridge is the prin. Its course is about 80 m. Its plain forms excellent pasturo land, and has the lowest rainfall in the Rep. of Ireland. The Golden Falls hydro-electric power station has a 6400-h.p. water-turbine and generator. (See illustration, p. 764).

**Lifford**, co. tn of Donegal, Rep. of Ireland, on the R. Foyle, 1 m. from Strabane n co. Tyrone. Pop. 800.

**Lift**, appliance for the transport of persons or goods between 2 or more levels in vertical direction by means of a guided car or platform. L.s are usually driven by electric power, but may be driven by hand or hydraulic power. The car and a part of the load are counterbalanced by a weight which is also guided. Otis of New York and Waygood of London installed the earliest successful electric L.s towards the end of the 1880's.

Modern high-speed L.s of 400 ft per min. and over employ gearless machines in which the sheave is mounted direct on the motor shaft. With automatic push-button control the car can be called to any floor by means of the landing pushes, or dispatched to any floor by

pressing the appropriate push in the car, and the car stops automatically at the required floor. Automatic L.s having collective control are arranged to answer both car and landing 'calls' in floor sequence independently of the order in which the car or landing buttons have been pressed. L. landing doors are provided with locking devices which prevent the L. from being operated unless all doors are closed, and prevent a door being opened unless the car is opposite that door. Modern L.s have power-operated doors which may open and close automatically or under the control of the L. attendant. The car is equipped with a safety device which clamps the car to the guides in the event of rope failure or of

sunk beneath the L. Another form of hydraulic L. is the suspended type in which the car is attached to a set of ropes that is led to a hydraulic cylinder and ram mounted on the wall of the L. By providing the cylinder and ram with an arrangement of multiplying pulleys, a relatively short cylinder may be employed. These L.s can operate at speeds as high as 400 ft per min. and the cars are provided with safety devices to prevent accident through rope failure. Hydraulic L.s, however, are now installed to meet special circumstances. In collieries steam-driven L.s were used, but to-day electrically driven L.s are usually arranged in pairs so that one cage counter-balances the other.



English Electric Co. Ltd

GOLDEN FALLS POWER STATION ON THE RIVER LIFFEY

excessive speed when descending, when overspeed on governor is provided. L.s may be provided with illuminated indicators to show the position of the car in L.-well and its direction of travel or the direction of a car that is about to stop at a landing. L.s are now frequently provided with automatic levelling equipment which ensures that the car stops level with the floor independently of the load or direction of travel. On high-speed L.s hydraulic buffers are installed to reduce impact should the car overrun its normal limits of travel.

Hand-power L.s are mainly used for the conveyance of meals and light loads where the service is infrequent. They are manually operated by means of an endless rope running in a V-grooved pulley that is mounted on a shaft which carries another V-grooved pulley over which passes the rope that 'connects' the car to the counterweight. For the larger sizes of hand-power L.s it is common practice to incorporate speed gearing in the winding mechanism.

Hydraulic L.s may be direct acting, in which the car is attached to the top of a ram which works in a hydraulic cylinder

Lifu, *see* LOYALTY ISLANDS.

Ligament, band of flexible connective tissue connecting the ends of bones and sometimes enveloping the joints. Most L.s are composed of white fibrous tissue, which is made up of fibres running parallel to each other so as to form a compact structure. Such are the L.s around the joints. Other L.s are composed of yellow elastic tissue which is specially adapted to support a continuous but varying stress, as in the L.s connecting the various cartilages of the larynx. L.s are also classified as *funicular*, or cylindrical cords; *fascicular*, or flattened bands; and *capsular*, or enveloping L.s completely investing a joint.

Ligan, or Lagan, *see* FLOTSAM.

Ligao, tn of the Philippine Is., in Albay prov., Luzon. Rice and abacá are grown. Pop. 37,331.

Ligature (Lat. *ligatura*, a band), cord, band, or thread for tying about arteries or other vessels to occlude them temporarily or permanently. A L. may be *provisional*, if it is applied during an operation with the intention of removing it after the operation has been performed. If a part is tied so as to prevent discharge from a vessel until a wound has been healed, it is

usual to employ pure silk or catgut for the purpose, so that it may become absorbed as the necessity for the L. passes away. For temporarily arresting the circulation of a limb, as when an artery is severed, a tourniquet (q.v.), which can be tightened by turning a stick thrust between the band and the limb, is employed. The word L. is also used with reference to the concomitants of ecstasy (q.v.).

**Liger**, see LOIRE.

**Light**, agency that produces the sensation called sight. Certain bodies such as the sun, lamps, fires, etc., are said to emit L. or to be self-luminous. Most objects, e.g. the walls of a room, grass, trees, human beings, books, etc., are rendered visible by L. reflected by them from self-luminous bodies. In the absence of such sources of L., these objects cannot be seen. L. travels through empty space with a velocity of 299,793 kilometres per sec., i.e. 186,283 m. per sec., so that it travels from the sun to the earth in rather more than 8 min. (see VELOCITY OF LIGHT). Its speed in air and other gases is slightly less than this, but in transparent substances such as glass and water its speed is considerably diminished. Thus in water its speed is less than 140,000 m. per sec. This diminution in the speed of L. as it passes from one transparent medium to another is responsible for the phenomenon of refraction that causes, for example, a stick to appear bent when partially immersed in water, and governs the behaviour of lenses. Reflection of L. takes place at the surface of separation of 2 media which have different velocities of transmission of L. For the laws of refraction and reflection see the articles on these subjects.

Newton (q.v.) first analysed white L. by means of a prism purchased at Stourbridge fair. The analysed L. consists of a very large number of colours that lie between what we call red and violet. These are the 'colours of the rainbow' and are produced in a similar way by refraction in rain drops. The wavelength of red L. is about  $7 \times 10^{-6}$  cm., while that of violet L. is about  $4 \times 10^{-6}$  cm. These wave-lengths have been determined with great precision by means of the interferometer (q.v.). Electromagnetic waves of wave-lengths lying between the above limits cause the sensation of colour when they enter the eye, and are said to lie in the visible spectrum; waves of greater wave-length than  $7 \times 10^{-6}$  cm. may affect our sense of heat (infra-red waves), and longer waves of the same type are used in connection with radar and broadcasting. Again electromagnetic waves of wave-lengths lying between  $10^{-7}$  and  $10^{-8}$  cm. are X-rays; and still shorter waves are the gamma-rays from radioactive substances. Ultra-violet waves are about  $3.5 \times 10^{-8}$  cm. long, and the shortest known waves are about  $4 \times 10^{-10}$  cm. The L. waves that affect our sense of vision are extremely short by comparison with ordinary objects, and they do not bend round them appreciably. Hence L. travels very approximately in

straight lines. Diffraction of L. waves takes place appreciably when the obstacle is very small and not very much larger than the wave-length of these waves. The diffraction (q.v.) grating provides such obstacles and analyses white L. by virtue of the fact that the diffraction effect depends on the wave-length. The diffraction grating thus enables us to measure the wave-lengths of L. with precision.

The phenomenon of *interference* (q.v.) is produced when L. waves from 2 suitable sources are superposed, and it is possible to obtain darkness by such superposition. The colours of soap bubbles and other thin films such as oil and petrol on a road are due to interference of L. L. waves may be *polarised*. In electromagnetic waves the vibrations, i.e. directions of the electric and magnetic fields, are at right angles to the direction of propagation of the waves. The vibrations may be in any one of the infinite number of directions at right angles to this direction of propagation. When L. passes through a crystalline medium the vibrations in the emergent waves are confined to 1 of 2 given directions, and if L. passes through 2 crystals suitably cut the emergent waves are *polarised*, i.e. there is only 1 direction of vibration. It is interesting to note the contrast between L. waves and sound waves—the vibrations in the latter are longitudinal, i.e. they are in the direction of propagation. Sound waves therefore cannot be polarised.

Optics is a very ancient branch of physics. It is stated that a lens of rock crystal was found in the ruins of Nineveh, while Aristophanes mentions the use of burning-glasses in *The Clouds* (Act II). Reflection and refraction were known to the Greeks of 300 BC, and theories of vision were formulated by the Pythagoreans and the Platonists. Cleomedes, a Roman of the time of the Emperor Augustus, following Ptolemy, extended the knowledge of refraction and explained that atmospheric refraction enables us to see the sun after it has set. De Hazen (about 10th cent. AD) wrote a book on optics, and, in addition to advancing the knowledge of reflection and refraction, made a close study of the optics of the human eye. Roger Bacon (13th cent. AD) made notable contributions and prophecies in optics, some of which bore fruit when Galileo constructed one of the first telescopes in 1609. Snell of Leyden discovered the law of refraction about this time, and Newton explained it by the assumption of a corpuscular theory of L. According to this theory a luminous body emits swarms of corpuscles that travel in straight lines through the all-pervading ether. Huygens, a contemporary of Newton, formulated a wave-theory of L., but Newton's great contributions to the knowledge of L., combined with his great reputation, caused his theory to be favoured, and it was left to Fresnel (1788–1827) and Young (1773–1829) to establish Huygens's theory by the evidence of their experiments on diffraction and interference, and

the explanation (by Fresnel) of the possibility of the propagation of L. in straight lines in normal circumstances (see above). The 19th cent. saw the development of the elastic solid theory of the ether, the medium through which L. was propagated, but this finally gave place to the electromagnetic wave (q.v.) theory following Maxwell's theoretical researches supported by the accurate determinations of the velocity of L. The emission of L. from self-luminous bodies is an atomic phenomenon that was given a satisfactory explanation by Planck, Bohr, and others in terms of the quantum theory (q.v.). Similarly the absorption of L., and in particular the emission of electrons from metallic surfaces illuminated by L. (photo-electric effect), was explained by the quantum theory. Certain properties of L., however, are explained only on the hypothesis that L. is propagated as electromagnetic waves (q.v.). Thus the quantum theory accounts for the photo-electric effect (q.v.), while the electromagnetic wave theory accounts for the interference of L. The relation between these 2 theories can be approached in terms of Heisenberg's Indeterminacy Principle (q.v.). The reader is referred to the articles on RADIATION and QUANTUM THEORY for further discussion of this problem.

See also ABERRATION; ABSORPTION; AETHER; COLOUR; DIFFRACTION; DISPERSION; FLUORESCENCE; INTERFERENCE; LENS; MICROSCOPE; MIRROR; OPTICS; PERISCOPE; PHOTO-ELECTRICITY; PHOTO-MULTIPLIER; PHYSICAL CONSTANTS; POLARISATION; REFLECTION AND REFRACTION; SPECTRUM AND SPECTROSCOPY; VELOCITY OF LIGHT; X-RAYS.

See T. Preston, *The Theory of Light*, 1928; E. J. Holmyard and F. Barraclough, *Heat, Light, and Sound for Beginners*, 1931; W. Bragg, *The Universe of Light*, 1933; R. W. Wood, *Physical Optics*, 1934; G. R. Noakes, *A Text-book of Light*, 1937; R. A. Houstoun, *A Treatise on Light*, 1938; E. J. Bowen, *Chemical Aspects of Light*, 1946; R. W. Ditchburn, *Light*, 1952; Isaac Newton, *Opticks*, 1952, based on 1730 ed.

Light Cure, see FINSER, N. R.

Light Railways, see RAILWAYS, *Light Railways*.

Light-year, see LIGHT and METROLOGY.

Lightlife, eccles. par. in the W. Riding of Yorks, 2½ m. E. of Halifax. Pop. 5000.

Lighter and Lightermen. Lighters are strong, heavy, flat-bottomed boats for transporting cargo to and from ships or docks. They are usually open, but some have a deck and large covered hatches. They are either furnished with mast and sail or else oars or sweeps are used; some are fitted for motor or steam propulsion, but many are towed. Lightermen are those employed in or about lighters. Thames lightermen are licensed by the Watermen and Lightermen's Co., incorporated in 1827.

Lightfoot, John (1602-75), cleric and rabbinical scholar, b. Stoke-on-Trent. He took orders and became chaplain to

Sir R. Cotton in London, who, in 1630, presented him to the rectory of Ashley in Staffs. His first pub. work, *Erubhim, or Miscellanies, Christian and Judaical*, appeared in London in 1629. His next pub. was *A Few and New Observations upon the Book of Genesis*, 1642. In 1643 he was made rector of St Bartholomew's Church, near the Exchange. In the same year he sat in the Westminster Assembly. In 1650 he was appointed master of St Catherine Hall, Cambridge, and 4 years later vice-chancellor of the univ. The best ed. of his work is by J. H. Pitman, 1822-3. See life by D. M. Welton, 1878.

Lightfoot, Joseph Barber (1828-89), prelate and theologian, b. Liverpool. In 1861 he was made Hulsean prof. at Cambridge, and shortly afterwards he became chaplain to the prince consort. In 1871 he was made a canon of St Paul's Cathedral, and in 1879 accepted the bishopric of Durham. He left a number of important theological works, the chief of which was his *Apostolic Fathers* (2nd ed.), 1890. He also wrote *Ignatius and Polycarp*, 1885, and commentaries on St Paul's Epistles. See W. Sanday, *Lightfoot as a Historian*, 1890; also life by B. F. Westcott, 1890.

Lighthouse, building erected to carry a light for the purpose of warning and guiding mariners as to their position and course. From very ant. times towers were erected with beacon fires, those built by the Libyans and Cushites in Lower Egypt being perhaps the earliest. The first beacon which was regularly maintained for the benefit of mariners was probably that referred to by the Gk poet Lesches at Sigeum in the Troad. The Pharos of Alexandria, built in the reign of Ptolemy II (283-247 bc) by Sostratus of Cnidus, was one of the 7 wonders of the world, and 'pharos' was for long used as a generic term for a L. The Emperor Claudian built a tower at Oetia in ad 50, and other noted L.s of the Romans were those at Ravenna, Pozzuoli, and Messina. The earliest L.s in W. Europe were those at Boulogne (La Tour d'Ordre) and at Dover (the Pharos), built by the Romans, who are also presumed to have erected L.s at Holywell and Flamborough Head. The earliest example of a tower exposed on all sides to the onslaught of the waves is the L. of Cordouan, built on a rock in the sea at the mouth of the Gironde; the first L. at this point (805) is attributed to Louis le Debonnaire. Many towers with braziers were built at various positions on the coasts of Europe during the 17th and 18th cents., such as those at Tynemouth (c. 1608), St Bees (1718), and the Lizard (1751) in the U.K. The Boston Light on Little Brewster Is., Massachusetts, is the oldest in the U.S.A., dating from 1716, and the present structure from 1859; other early L.s were erected at Beaver Tail, near Newport (1740), and at Brant in Nantucket Harbour (1754). L.s built on rocks, etc., exposed to the sea may be of masonry or concrete, of openwork steel or iron on

pile foundations, cast-iron plated towers, or structures on cylinder foundations. Masonry towers require good foundations; the centre of gravity should be as low and the foundations as deep as possible, and the structure should be of a circular plan. There should be no projections save a gallery under the lantern. The stones, especially those on the outer face, should be dovetailed or joggled; recently concrete and reinforced concrete have been used in construction. The openwork L.s. are suitable for shoals, coral reefs, etc., where the bottom is insecure or sandy, as iron or steel piles can be driven in and the structure built thereon. Iron-plated L.s. are erected in situations where the cost of stone or the scarcity of labour renders masonry expensive. Cylinder or caisson foundations are used where it is desired to erect a substantial structure on sandbanks, shoals, etc., as in the case of the *Rothersand Tower* (see below). Some of the more important of exposed L.s. are: *Eddystone L.* (q.v.). *Bell Rock L.* (1811) off *Forfarshire* has a focal plane 93 ft above high water. *Skerryvore L.* (1844) off *Argyllshire* has a height of 138 ft, a diameter at the base of 42 ft, and at the summit of 16 ft. *Héaux de Brehat L.* (1853), off the *Île de Ré*, has a height of 86 ft. *Bishop Rock L.* (1858, destroyed during building in 1850), in the *Scilly Isles*, was strengthened in 1874 and again between 1881 and 1897. *Minot's Ledge L.* (1860), in *Boston Harbour*, *Massachusetts*, U.S.A., has a height of 89 ft. *Beachy Head L.* (1902) has a height of 103 ft; the old structure on the cliff had a height of 284 ft. *Rothersand L.* was commenced in May 1881, but was destroyed in Oct. of the same year. The present structure, which was completed in 1885, has a height of 78 ft above high water, or from the foundation caisson to the top vane a height of 185 ft. Other noteworthy L.s. are the *Horsburgh*, *Singapore* (1851); *Smalls L.* (present structure 1861); *Daedalus Reef in the Red Sea* (1863); the *Wolf Rock L.* (1869); *Dhu Heartach* (1872); *Great Basses*, *Ceylon* (1873); *Prongs*, *Bombay* (1874); *Spectacle Reef*, *Lake Huron* (1874); *Chicken Rock*, off the *Calf of Man* (1874); *Armen*, near the *Île de Sein*, *Finistère* (1881); *Rattray Head* (1895); *Fastnet* (q.v.) (1904); and *Jumant d'Ouessant*, *France* (1911). L.s. built on land do not present any particular difficulties in construction; the highest is the *Vierge Tower* (*Finistère*), built in 1902, with a height of 247 ft from ground to focal plane, whilst the *Phare d'Eckmühl* (*Penmarc'h*, *Finistère*), 207 ft, built in 1897, is one of the most magnificent of such structures.

*Optical apparatus of lighthouses.* There are 3 different systems of lighting: the catoptric, the dioptric, and the catadioptric. In the first the rays of light are simply reflected on silvered mirrors of plane, spherical, parabolic, or other profile. In the second the rays pass through lenses and are refracted at the incident and emergent faces. In the third system the light rays are refracted at the incident

face, are totally reflected internally at the second face, and are again refracted on emergence at the third face. The catoptric system dates from about 1763, the dioptric from about 1786, and the catadioptric from 1823; the two latter were invented by *Augustin Fresnel*. The catoptric system is not very efficient, since only a portion of the light emitted by the light source is reflected. When the rays from the source of light are distributed evenly into a belt of light around the horizon, being condensed only in the vertical plane, the light is a 'fixed' light. When the rays are concentrated into a pencil or cone of light directed towards the horizon and caused to revolve round the source of light, the light is a 'flashing light.' For sector lights and those throwing a beam over a wider azimuth than the flashing lights, the rays are condensed, both in vertical and horizontal plane, in such a manner as to concentrate the light over an azimuth of the required magnitude. Fixed lights are now very little used, being converted into occulting lights by the use of apparatus which cuts the light off at intervals. Coloured lights are not much used, as the power of a red light is only 40 per cent of the same light through uncoloured glass, and that of green only 25 per cent. Lights are divided by the Admiralty into fixed, flashing, and occulting. The distinction between the two latter is simply one of duration. All lights in which the period of darkness exceeds that of light are termed flashing, whilst all in which the light period is longer than the dark are termed occulting. These are further divided into group flashing, fixed and flashing, fixed and group flashing, and group occulting, according to the duration and combination of light and darkness. An 'alternating' light is one in which different colours are shown alternately without an interval; the term 'revolving' is still retained in Great Britain for a light which gradually fluctuates between eclipse and full. A modern development has been the use of automatic control L.s. These are of sev. designs; there is usually a double or triple set of generators, run by petrol or Diesel engines and set to operate on alternate nights, and to take up the load on the failure of the running set. Time switches bring the light into action at set times, and flags and lights are arranged to warn an attendant of any faults. Remote control has also been developed, the controls being operated where necessary by submarine cable, as at the *Platte Fougère L.* off *Guernsey*.

*Illuminating agents.* As late as the 19th cent. wood or coal was used to give light in L.s.; *Smeaton* introduced candles. Oil-lamps with flat wicks were introduced about 1763, and the invention (c. 1780) of the *Argand burner* caused a great improvement. *Sperm oil* was used at first, and later *colza oil*. In 1868 a burner was invented which would consume hydrocarbon oils (petroleum, etc.). The use of coal gas dates from 1837. *Acetylene* is

also extensively used, particularly in the case of unattended lights. Its light is intensely bright whether plain burners or mantles are used. The first installation of electric light for L. purposes was in 1858. In the early days the light was produced by arc-lamps, but these have now been superseded by high-power, gas-filled, filament lamps of up to 6 kilowatts. The current is obtained from a local supply whenever possible, or a small generating set driven by internal combustion engines is installed. In the event of failure of the main electrical supply, storage batteries or an emergency gas burner may be brought into use. Some lenses weigh many tons and are mounted upon a carriage which floats in mercury and is rotated by a simple weight-driven clockwork mechanism. The higher power of electric lamps enables lenses to be smaller and lighter, so that the mercury rotating arrangement can be replaced by a ball-bearing mounting, and the clock by electric motors.

*Lightships, buoys, etc.* The use of vessels in places where L.s cannot be erected dates from 1732 (see LIGHTSHIP). The use of unattended lights dates from 1884. Now electric and oil beacons, fitted with automatic apparatus for lighting, flashing, etc., have been placed at various points, and permanent wick lights, in which the wick is treated so that a deposit of carbonised tar is formed on its upper surface, are also used. Similar apparatus is also fitted to buoys (q.v.). A plant using dissolved acetylene can be installed in a buoy and may be left unattended for a year. For use in fog many forms of mobile signal have been developed, including explosives, sirens, bells, oscillators, whistles, and diaphones. Radio beacons are also used, and radar is being developed; the Decca system employs radio signals which actuate a special receiver, having dials with coloured markings, the relation of these to a special chart giving an exact and instantaneous geographical position. See LIGHT.

See E. Allard, *Mémoire sur l'intensité et la portée des phares*, 1876; T. Stevenson, *Lighthouse Construction and Illumination*, 1881; J. S. Wryde, *British Lighthouses*, 1913; J. W. Corbin, *Romance of Lighthouses*, 1926; R. Wheeler, *Roman Lighthouses at Dover*, 1930; League of Nations, *Records and Texts of the Conference for the Unification of Buoyage and Lighting of Coasts*, Geneva, 1931; G. R. Putnam, *Lighthouses and Lightships of the U.S.*, 1933; R. L. Jones, *Silent Sentinels*, 1944; and articles by Chance, Douglass, Hopkinson, Brehner, and others in *Proc. Inst. Civil Engineers* (vols. xxvi, xxx, xxxviii, lvii, lxxv, lxxxviii, cviii, cxlix, etc.).

Lighting, natural and artificial, indoor and outdoor, has come to be the subject of careful scientific study. The standards of a cent. ago would be quite inadequate for modern precision engineering, reading habits, and night traffic. Good seeing conditions depend not merely on the quantity of L. but also on its quality or distribution; glare can interfere with

vision, as well as shadow. This is why vehicle headlamps must be provided with dipping arrangements, but the same principle applies with indoor L. as well.

*Natural lighting*, or daylighting, is taken into account by the architect designing a building. It presents no great problem with the small house, but in designing schools, hospital wards, factory workshops, and large offices much calculation may be needed to ensure that windows are of the right size and in the right places to give enough illumination, without glare, at all points where it is needed, keeping in mind that different tasks require different levels of illumination. Indoors a level of illumination of only 2-3 per cent of that existing outdoors under the open sky will be sufficient for most tasks; the eye can adapt easily to that lower level, but only if there is no glare; a patch of white sky seen through a window in the field of vision may set up eyestrain.

*Artificial lighting* is relatively independent of the design of the building, and it may be designed by an illumination engineer rather than by an architect. The same principles as regards quantity and quality apply as with natural L. The units used for measuring source brightness and illumination level, the candlepower and the foot-candle, recall the earliest form of artificial L. Gas, either mains supply or 'bottled,' is still widely used for L., even in some London streets (see WELSHBACH). For special purposes, where a very intense but small source is needed, as in film projectors, the carbon arc-lamp is still used; its disadvantages are the amount of heat it produces, the need to adjust the carbon rods as they burn away, and the fire risk. Electric lamps in which the source is totally enclosed by glass are most generally used for domestic, industrial, and street L. There are 3 main types: filament, gas-discharge, and fluorescent. In a filament lamp the current is carried by a wire, which is thereby heated to incandescence; the bulb may contain either a vacuum or an inert gas, so that the filament does not oxidise. In a discharge lamp, usually tubular in shape, the conductor is a gas or a metallic vapour at low pressure; this also is raised to incandescence and emits light of a characteristic colour, depending on the gas; the most familiar are neon (red), sodium vapour (yellow), and mercury vapour (bluish). The fluorescent lamp, which is becoming widely used in shops and offices, and even in the home, looks similar to the ordinary discharge lamp, but the inside of the tube is coated with a substance that emits light (fluoresces) when struck by the extremely small charged particles carrying the current along the tube—the same principle as with the television screen. Discharge and fluorescent lamps produce very little heat, so they are cheaper to run than filament lamps, but the initial outlay is greater.

*Street lighting* is much studied in Great

Britain (at the Roads Research Laboratory) and abroad as a means of reducing traffic accidents. It must be uniform and free from glare and must also take account of reflection off the road, wet or dry, foggy weather, and the lights carried by the vehicles themselves. Red or yellow light, as given by the sodium-vapour lamp, has the advantage of being less scattered by fog or mist. *See also* ELECTRIC LAMPS; ELECTRICITY IN THE HOME; PHOTOGRAPHY.

*See British Standard Code of Functional Requirements for Buildings*, Chs. I (Day-light, sunlight, and ventilation) and VII F (Provision of artificial light).

**Lightning**, *see* THUNDERSTORM.

**Lightning-stick**, *see* BULLROARER.

**Lights**, Ancient, popular name for the easement (q.v.) of right to light. The right to have free access of the sun's light to one's windows without obstruction by others originates either in a grant (q.v.) or by prescriptive title of 20 years. The presumption in favour of the right after 20 years' uninterrupted enjoyment is that it has always existed. If, therefore, the person resisting the right proves that 40 (say) years ago the access was blocked against the claimant or his predecessor in title, the inchoate right is defeated; and the same result follows if he can show that the claimant's enjoyment of light depended on a written leave or licence given by him (the person resisting) or his predecessor for a limited and now expired period. The owner of anct L. is entitled not only to sufficient light for the purpose of his then business, but to all the light which he has enjoyed prior to the interruption he seeks to restrain. A right to anct L. cannot be acquired in favour of open ground, but only in favour of buildings. If a person enlarges old windows, these enlargements can be obstructed with impunity, though the anct L. are still entitled to protection. The right to anct L. is lost only by intentional abandonment. *See also* EASEMENTS and LAND LAWS.

**Lights**, Artificial, are produced by bringing some substance to a state of incandescence. In the older methods this substance is usually some form of carbon. When a candle or oil-lamp is lit small particles of carbon are produced by the decomposition of the organic substances in the material, and these particles become heated to incandescence. Oils of vegetable and animal origin have been used in lamps, but the introduction of mineral oil in 1853 brought a greater efficiency, and the fall in price on the discovery of oil wells in America brought that illuminant within the reach of all. In the efficient burner introduced in 1784 by Argand, the wick takes the form of a hollow cylinder; a current of air passes upwards and feeds the inner surface of the flame with oxygen. Coal gas was first used as an illuminant by Wm Murdock of Redruth in 1779. The early burners were of the 'batwing' type, in which a flattened flame was produced by a slit in the end of the burner. Later the 'fishtail' flame

was produced by causing 2 jets of gas from 2 small holes in the burner to impinge upon one another, with the result that a flattening of the flame was produced. The Bunson flame (1828) is non-luminous because the introduction of air into the gas current causes complete oxidation of the carbon with a resulting high temp. But the flame was used to heat a mantle made of oxides of rare earths to incandescence (1855). Later inverted burners were introduced. *See* ACETYLENE; ELECTRIC LAMPS; LAMPS; LIME-LIGHT.

**Lights**, Northern (*Aurora Borealis*, *Auroralis*, *Polar Light*), natural phenomenon which occurs in many forms, often of great beauty. The prin. types are arcs, bands, rays, curtain or draperies, patches, diffused aurora, and, perhaps most beautiful of all, corona. These all vary in shade from smoky black or grey to brilliant yellow, green, violet, or flaming red. The aurora usually begins with an arch, its apex to the magnetic meridian. It is often better defined on its lower side, and underneath the sky seems darker than the rest of the heavens. Stars are visible through this 'dark segment' as well as through 'the aurora' itself. The bright streamers of light which often extend 20 or 30 degrees upwards are known to the Shetlanders as the 'merry dancers.' Auroral displays are most frequent and most brilliant in higher lat. Recent investigations have located the position of the aurora borealis, which is found to lie within a region from 50 to 300 m. or more above the surface of the earth. Spectrum analysis has identified the pronounced green line in the auroral spectrum as an oxygen line, but the precise nature of the aurora is not definitely known. This much seems fairly certain, however: magnetic storms (*see* MAGNETISM) and displays of the aurora borealis synchronise with a period of great sun-spot activity. Hence the aurora is in some way connected with emanations from the sun—emanations that must be electrical in nature to create the magnetic storms on the earth. These electrons ejected by the sun reach the earth in about a day or less and the earth's magnetic field produces certain dispositions in their arrangement which are responsible for the aurorae, but there are still sev. things about the actual process which are unexplained.

**Lightship**, stoutly built vessel of steel or iron, fitted with lights and fog-signals, and occasionally with radio beacons to assist in direction finding, and moored at sea near reefs and other dangers to navigation where it is not feasible to erect a light-house. They vary in length from 80 to 120 ft, and have displacements up to 500 tons. The first — L. was that placed at the Nore in 1732, which had a lantern hung at the yard-arm. Later lanterns which surrounded the mast and could be lowered during the day were introduced by Robert Stevenson, this type being universally adopted, though the latest practice is to have a fixed lantern mounted at the top of a short, hollow

steel mast. Prior to 1895 the lights were of the catoptric form, but nowadays dioptric or multicatoptric apparatus is generally fitted.

Because of the rolling of the vessel some means of maintaining the horizontal direction of the beam is necessary. This is accomplished by means of gimbals and counter-balance weights, or by a device called a constant level table, where the lens table is balanced on a pivot in the lantern and connected by vertical wires to a pivoted counter-balance weight placed at the rolling centre of the vessel, which controls the movement of the upper table. The illumination in light vessels is provided by electric filament lamps, except in some very old vessels, which still have oil lamps.

**Ligne, Charles Joseph, Prince de (1735-1814)**, Austrian soldier and writer, b. Brussels, descended from a princely family of Hainault. He distinguished himself in the Seven Years War, afterwards rising to the rank of lieutenant field marshal. In the War of the Bavarian Succession he commanded the Austrian artillery at the siege of Belgrade in 1789. At the conquest of Belgium by the French he lost all his estates, but was given the rank of field marshal and an honorary command at court. From this time onwards till his death he devoted himself to literary work. His collected works, of which *Military Fancies and Prejudices*, 1780, is the best known, appeared in 34 vols. at Vienna during the last years of his life, selections being pub. in French by Mme de Staël. See lives by J. Thürheim, 1877, and V. Du Bled, 1890.

**Lignite** (Lat. *lignum*, wood), mineral substance of vegetable origin like coal, but often showing a distinct fibrous or woody structure. It is light, friable, and porous, closely resembling charcoal, but brown in colour, hence 'brown coal.' It occurs in beds like true coal, but is of much later geological age, dating from the Tertiary Miocene period. Deposits of L. are found in many parts of the world, the chief Brit. deposit being at Bovey Tracey, Devon. It is used as fuel, also in the manuf. of producer gas and synthetic liquid fuel; wax and rosin are obtained from certain types. Jet is a variety of L.

**Lignum Vitæ**, wood of *Gutierrezia officinale* and native of Cuba, Jamaica, San Domingo, and Porto Rico. Another species, *G. sanctum*, comes from the Bahamas. Contains the fragrant resin known as gum gualacum. It is one of the most outstanding of all timbers, as it is not only one of the hardest and heaviest known woods, but has also the almost unique property of being self-lubricating—that is, of containing sufficient oil or resin to make it suitable for bearings, without either catching fire from friction or needing any oil. It weighs nearly 80 lb. per cu. ft. See **TIMBER**.

**Ligny**, vil. in the prov. of Namur, Belgium, 13 m. N.E. of Charleroi, was the scene of Napoleon's victory over Blücher, 16 June 1815, 2 days before the battle of Waterloo (q.v.). L. has an important

export trade in granite and marble. Pop. 2000.

**Liguori, Alfonso Maria di (St Alphonsus) (1696-1787)**, Rom. Catholic theologian, founder of the Redemptorist order, b. Marianella, near Naples. In 1726 he became a priest, and in 1732 organised the 'Congregation of the Most Holy Redeemer,' being appointed by Pope Benedict XIV founder-general for life. He was canonised in 1839, and declared a doctor of the Church in 1871. Moral theology was the most important dept of his teaching, and his system of casuistry is well known. His chief work is his *Theologia Moralis*. See lives by A. M. Tannoja, 1798-1802; A. Capeccelatro, 1893; A. C. Berthe, 1900.

**Liguria:** 1. Dist. of anc't Italy between the Ligurian Sea (Gulf of Genoa) and R. Po, bounded W. and E. by R. Varus and R. Macra. In early times the ter. extended into Gaul. The Ligures were conquered by the Romans in the 2nd cent. BC.

2. Modern region (*compartimento*) of NW. Italy, comprising the provs. of Genoa, Imperia, La Spezia, and Savona (qq.v.). It borders the Gulf of Genoa (q.v.), and is bounded N. by Piedmont and Emilia-Romagna, W. by France, and E. by Tuscany (qq.v.). It is mountainous, containing ranges of the Ligurian Alps (q.v.) and the Ligurian Apennines (see **APENNINES**). There are mineral deposits (manganese, silver) and there are important iron, steel, shipbuilding, and engineering industries. The chief tn is Genoa. Area 2095 sq. m.; pop. 1,602,000. See **RIVIERA**.

**Ligurian Alps**, most S. part of the Alps. The L. A. lie between the low ground NW. of Savona and the Maritime Alps. The chief pass in the W. is the Col di Tenda (6145 ft) and to the E. of it is the Mengioja massif (8629 ft) which sends out spurs overlooking, from 6000 ft, the Riviera. The E. part lies further back from the Mediterranean and is lower.

**Ligurian Republic**, name given to the rep. of Genoa (q.v.) during its last years (1797-1805), when it was reorganised by Bonaparte and made to substitute a democratic for an aristocratic constitution. Till 1802 it was ruled by a Directory, when a doge appointed by Bonaparte became the chief executive. Finally it was annexed to France in 1805.

**Ligurian Sea**, name given to that part of the Mediterranean (q.v.) between Liguria and Tuscany (qq.v.) to the N. and Corsica (q.v.) to the S. It includes the Gulf of Genoa (q.v.).

**Lihnidos**, see **OHRID**.

**Lilac**, name for various species of *Syringa* (family Oleaceae). They are very hardy, deciduous shrubs, bearing large terminal panicles of flowers, which vary in colour from white to blue, violet, and purple, and are in most cases delightfully fragrant. *S. vulgaris*, a native of Persia, with its many modern varieties, is one of the commonest shrubs, and grows under the most unfavourable conditions, but is more floriferous when regularly pruned and its faded flower heads and also its



suckers removed. It is easily forced to produce blooms in mid winter. *S. persica* is a dwarf L., and very free flowering. The buds, leaves, and bark of *S. vulgaris* contain lilacine, an alkaloid with febrifugal qualities, highly valued in S. Europe.

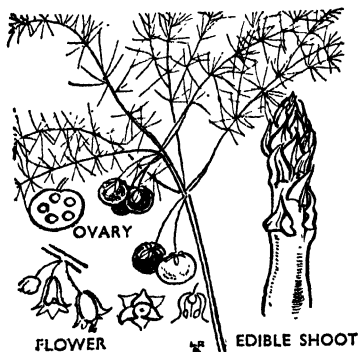
Lilburne, John (1614-57), political agitator and pamphleteer, b. Greenwich. He became the leader of the 'Levellers

(1637-40) for circulating unlicensed books, and, though he served with distinction in the Parl. army, his political views caused his imprisonment under Cromwell. L. had many faults, being quarrelsome and litigious, but he was sincerely concerned

novels, including *Der Mäcen*, 1889, *Kriegsnovellen*, 1895, and a very popular humorous epic, *Poggfred*, 1896. L. is remarkable for his masterly use of language, which is one of the best examples of Ger. impressionism. His *Sämtliche Werke* appeared in 14 vols., 1904-5. See H. Braun, *Lilientron und der Naturalismus*, 1923; also lives by F. Böckel, 1904, H. Mayne, 1920 and J. Elema, 1937.

Lilienthal, David Eli, see ATOMIC ENERGY COMMISSION.

Lilienthal, Otto (1848-96), Ger. engineer and aviation pioneer. He was one of the greatest figures in the hist. of flying. He was the first scientifically trained inventor to build full-size fixed-wing gliders and fly them successfully and progressively



LILIACEAE: (left) ASPARAGUS; (right) LILIUM REGALE



for what he conceived to be the fundamental rights of the people. He later became a Quaker. See M. A. Gibb, *John Lilburne, 1614-1657*, 1948.

Liliaceae, family of about 2500 species of herbs, bulbous, cormous, rhizomatous, etc., but with flowers usually hermaphrodite and actinomorphic, and 3-merous, with petaloid perianth, stamens in 2 whorls, and superior ovary, with capsule or berry fruits. Of 200 genera, the chief are *Asparagus*, *Allium*, *Aloe*, *Anthericum*, *Asparagus*, *Asphodelus*, *Aspidistra*, *Bulbocodium*, *Calochortus*, *Chionodoxa*, *Colchicum*, *Convallaria*, *Cordylone*, *Draacena*, *Eremurus*, *Erythronium*, *Fritillaria*, *Gallionia*, *Gloriosa*, *Hemerocallis*, *Hosta*, *Hyacinthus*, *Kniphofia*, *Lapageria*, *Lilium*, *Muscari*, *Ornithogalum*, *Polygonatum*, *Ruscus*, *Sansevieria*, *Scilla*, *Smilax*, *Trillium*, *Tulipa*, *Uvularia*, *Xerophyllum*, *Yucca*.

Lilientron, Detlev, Freiherr von (1844-1909), Ger. novelist and poet, b. Kiel. He served in the campaigns of 1866 and 1870-1, and held gov. posts till 1887, when he began to follow the pursuit of literature. His best work, pub. when he was almost 40, is his poetry *Adjutantenritte*, *Gedichte*, *Nebel und Sonne*; he also wrote

(1891-6) whilst studying the subject exhaustively. Through witnesses and widely circulated articles and photographs his work directly inspired many other pioneers, including the Wright brothers (q.v.), who carried on from where he left off and brought the cent.'s efforts to successful fruition. L. crashed and was killed in one of his gliders when trying out a head-harness to work the rear elevator.

Lilith (Heb., 'night-monster'), derived from the Mesopotamian *Lilu*, and in Jewish mythology a female demon menacing children. Rabbinic tradition made her Adam's first wife, who deserted him to become a fiend.

Lilium, see LILY.

Lille (anc. *Insula*; Flem. *Rijsel*, or *Ryssel*), Fr. city, cap. of the dept. of Nord, on the Deule. It was the anc. cap. of Fr. in Jewish (see FLANDERS). With Douai, it passed to the counts of Flanders in the 14th cent., then to Burgundy, Austria, and Spain, returning to France in 1668. It underwent a memorable siege in 1708 (see BOUFFLERS, DUO DE), and another in 1792. It was damaged in both world wars, and was in Ger. hands, 1914-18. L. is the seat of a bishopric, and has a univ. The enormous citadel was built by

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Vauban (q.v.). There are some fine churches, and the Palais des Beaux Arts has one of the best collections of paintings outside Paris. L. is the centre of a great industrial and commercial dist., which includes Roubaix, Tourcoing, Croix, and La Madeleine (qq.v.). Its industries include the spinning and weaving of woollens, cotton and linen, and metalurgical, mechanical, and chemical manufs. It is an important road and rail junction. It was the bp. of Faidherbe, Lalo, and Gen. de Gaulle (qq.v.). Pop. 188,900. See Van Hende, *Histoire de Lille*, 1874.

Lillebonne (anc. Jullibona), Fr. tn in the dept. of Seine-Inférieure, 20 m. E. of Le Havre. The anc. tn was sacked by Caesar, and there are remains of a Rom. theatre and baths. There is a textile industry. Pop. 6000.

Lillehammer, tn on Lake Mjøsa, Norway, 80 m. NNW. of Oslo, the co. tn of Oppland (q.v.). It is a popular holiday centre noted for its collection of anc. buildings—De Sandvigske Samlinger at Malhaugen. Pop. 6800.

Lillers, Fr. tn in the dept. of Pas-de-Calais. It has oil works and footwear is manuf. Pop. 8600.

Lillibullero, refrain of an Irish revolutionary ballad, words attributed to Lord Wharton and music to Purcell. The word 'L.' was probably used by the Irish Rom. Catholics during the Protestant massacres of 1641, and the ballad, a scurrilous attack on the Catholics, had great political effect, helping to bring about the revolution of 1688. Commando units adopted the tune as a march in the Second World War.

Lillie, Beatrice (1898- ), revue actress, b. Toronto, Canada; married Sir Robert Peel. She made her first stage appearance at the Chatham Music Hall in 1914 and her first appearance in London at the London Pavilion in the same year in *The Daring of Diane*. She then went into revue at the Alhambra, Leicester Square, under the direction of André Charlot, in *Not Likely*, and her clear-cut style and gift of comedy soon drew attention. She made a very big success in *The Nine o'Clock Revue* at the Little Theatre in 1922. She started in New York in *André Charlot's Revue of 1924* which made her a great favourite with New York audiences. In 1926 she made her first appearance in cabaret, in New York, and was acclaimed. She is the outstanding cabaret performer of modern times and has since spent her time between London and New York, in revue, cabaret, and variety. As a singer of 'point' songs she is unsurpassed and she remains one of the great individual artistes of her time, of the same status and power as the famous music hall performers of the older days.

Lilliput, name of a fabulous kingdom described in Swift's *Gulliver's Travels*, 1726. Gulliver was wrecked on its shores, and the inhab. (Lilliputians) were so diminutive, being merely about the size of a man's finger, that Gulliver seemed a giant to them. Hence as an adjective lilliputian means tiny, dwarfish.

Lillo, George (1693-1739), dramatist, b. London, son of a Dutch jeweller. His first play was produced at Drury Lane in 1730. Of his works, *George Barnwell*, 1731, commended by Pope, and *Fatal Curiosity*, 1736, produced at the Haymarket by Fielding, are the best known. See study by L. Hoffman, 1888.

Lilly, William (1602-81), Eng. astrologer and fortune-teller, satirised in Butler's *Hudibras* as 'Siddrophel'. He issued a series of yearly almanacs: *Merlinus Anglicus, Junior*, 1644-81; *Christian Astrology*, 1647; the *Introduction to Astrology* (last ed. pub. in 1852 by a London publisher, 'with numerous emendations'); *True History of King James I and Charles I*, 1651. See his autobiography, 1715.

Lily, John, see LYLY.

Lily (*Lilium*), large genus which includes some of the most beautiful bulbous plants, of the family Liliaceae. There are no true Brit. species of the genus. The various species grow under widely different conditions in most of the warmer parts of the world, but in Brit. gardens the best position for the majority of them is a sheltered one with partial shade and a light loamy soil. The European L.s usually do best in ordinary gardens; the best of these is the Madonna L. (*L. candidum*), with pure white bell-shaped flowers. *L. martagon* (Turk's Cap) bears numerous purple or white flowers on tall stems. Other European L.s are *L. croceum* and *L. bulbiferum*, both orange; *L. pyrenaicum*, with yellow blooms spotted with brown; *L. pomponium*, producing an umbel of scarlet flowers; and *L. chalcedonicum*, also scarlet. One of the most popular species is *L. auratum*, enormous numbers of bulbs being imported annually from Japan. It does best when grown among peat-loving shrubs. A very early species is *L. hansonii*, spotted yellow. *L. speciosum*, white and red, is a valuable plant for providing cut flowers, but is much grown also in pots and borders. *L. tigrinum* (tiger L.), with its orange red and black blooms, is one of the hardest, coming up regularly in borders after once being planted. *L. giganteum* is a native of the Himalayas. From a large fleshy bulb a thick stem rises 10 ft high, and bears numerous trumpet-shaped flowers, white, tinged with purple. The bulb dies after flowering.

Lily, Giant, or Spear Lily (*Doryanthes excelsa*, family Amaryllidaceae, not to be confused with *Lilium giganteum*), magnificent Australian flowering plant with ornamental foliage, sometimes grown in large greenhouses. It bears clusters of scarlet blooms on huge stems, 10 to 12 ft tall, in late summer. Old plants throw off suckers very freely, and the plant is easily propagated.

Lily of the Valley (*Convallaria majalis*), native Brit. plant, much grown in gardens. Its fragrant drooping bells rising from the characteristic leaves are highly decorative. The plant forces exceptionally well, and for this purpose large numbers of crowns are retarded by refrigeration, and from these with gentle heat the flowers can be

produced all the year round. A number of fine varieties have been introduced.

**Lilybasum**, see MARSALA.

**Lilye**, or **Lily**, William (c. 1468-1522), grammarian, b. Odham, Hants. He became headmaster of St Paul's School and is reputed to have been the first to teach Greek in London. He assisted Colet in compiling the *Eton Lat. Grammar*, and pub. sev. vols. of *Lat. verse*.

**Lim Yew Hook** (1914- ), Singapore politician, educ. at Raffles College. He became a confidential secretary, and first became prominent in local politics as the secretary of the Singapore Clerical and Administrative Workers' Union. He visited England on a Brit. Council scholarship, 1947. L. was a nominated member of the Singapore Legislative Council, 1948-51, and has since been an elected member of the Council (now called the Assembly). He was labour minister in 1955, and when David Marshall (q.v.), the chief minister, resigned, L. succeeded him (1956). In Mar. 1957 he visited London for talks with the Brit. Gov. which resulted in an agreement (made in April 1957) under which Singapore was to obtain internal self-gov. and a new status within the Commonwealth. See SINGAPORE.

**Lima**: 1. Maritime dept. of Peru, bounded on the W. by the Pacific. The surface is very mountainous, with fertile valleys in the W. Sugar is produced; nitre, copper, and silver are mined; and there are exports of chinchilla skins and vicuña wool. Area 15,052 sq. m.; pop. 1,230,423.

2. Cap. of above and of Peru, on the Rimac, 6 m. from its port, El Callao, on the Pacific. Among its chief buildings are the cathedral (begun 1535, rebuilt after the earthquake of 1746), a public library with rare books, the univ. (1551), and mint (1565). Founded by Pizarro (1535) as *Ciudad de los Reyes* it became the seat of the Sp. viceroys of Peru, and later cap. of the rep. The 16th-cent. univ. of San Marcos is one of the two oldest in the New World. Markham College for boys is one of the finest Brit. schools outside the U.K. L.'s manufs. include gold lace, glass, pottery, textiles, tobacco, furniture, cocaine, aircraft, etc., and silver, copper ore, bark, chinchilla skins, vicuña wool, nitre, soap, and cinchona are exported. Pop. 835,468. See J. Vagela, *History of Peru*, 1938.

3. City and co. seat of Allen co., Ohio, U.S.A., on Ottawa R., 12 m. SW. of Toledo. It has oil refineries, steam-engine and motor-car works, and manufs. electrical goods, tile-roofing, tobacco products, etc. Pop. 50,200.

**Lima Wood**, see BRAZIL WOOD.

**Liman von Sanders**, Otto Viktor Karl (1855-1929), Ger. general in Turkish service, b. Stolp, Pomerania, son of Karl L., country gentleman. Receiving a commission in the Grand-Ducal Hessian Foot-Guards, 1875, he was major-general by 1908, and in 1911 was appointed to command the 22nd Div. in Kassel. Ennobled in 1913 he added von Sanders to his name. In the same year he was sent

to Constantinople, made Ger. general, and marshal and inspector of the Turkish Army, Jan. 1914. Commanding the Turkish Fifth Army at the Dardanelles (q.v.), he compelled the allied forces to retire. Just before the end of the war he was preparing for the defence of Palestine; but the Turkish defence collapsed, and L. narrowly escaped capture at Nazareth, 18 Sept. 1918. At Adana, where his forces re-formed, he heard of the armistice, and gave up his command. On his voyage from Constantinople to Hamburg he was detained sev. months by the British at Malta. There he began writing his *Five Years in Turkey* (Eng. trans., 1928).

**Limassol** (Gk Lemesos), second port of Cyprus, on the S. coast. It has a lighterage basin and jetty and is the centre of the Cyprus wine industry. Richard I married Berengaria here (1191). There is a medieval fort. Estimated pop. (1954) 27,300.

**Limavady**, tn of co. Derry, N. Ireland, 16 m. E. of Derry. The famous Irish melody known as the Londonderry Air (q.v.). 'Danny Boy' was first written down in L. by Jane Ross in 1851 from an itinerant fiddler, MacCormick. It is believed to have been composed by Rory Dall O'Callan, harper-composer of the 16th cent. Pop. 3300.

**Limax**, see SLUG.

**Limb** (Lat. *limbus*, border), in astronomy the border or edge of the apparent disk of a heavenly body, especially the sun and moon.

**Limbach**, Ger. tn in the dist. of Karl-Marx-Stadt, 7 m. WNW. of Karl-Marx-Stadt (q.v.). It has textile and engineering industries. Pop. 20,000.

**Limbe**, tn, Nyasaland Protectorate, 5 m. from Blantyre (q.v.); important commercial centre, H.Q. of Nyasaland Railway. Tobacco grows extensively in dist. Pop.: Europeans, 1000; Asians, 1000; Africans, 9000.

**Limber**, that part of a gun-carriage, consisting of 2 wheels and shafts, and forming an ammunition container, to which horses are harnessed or the traction vehicle attached. See MACHINE-GUNS and ARTILLERY.

**Limless**, Aids for the, see ARTIFICIAL LIMB.

**Limbo**, or **Limbus** (Lat. 'border,' 'edge'), in Rom. Catholic theology the name given to the place of modified bliss assigned to those departed souls who are unfit for the divine vision, but who possess a natural goodness and have not actually offended God. Dante (*Inferno*, iv) described L. as the uppermost of the 9 circles subdividing Hell, the L. *patrum* containing the spirits of the virtuous heathen and the L. *Infantium* those of unbaptised infants.

**Limborch**, Philip van (1633-1712), Dutch Arminian, b. Amsterdam; was pastor at Gouda and Amsterdam, and in 1668 appointed prof. in the Arminian College, Amsterdam. His *Institutiones theologiae christianae* and *Historia Inquisitionis* have been trans. into English.

**Limbourg** (Flem. Limburg), old Dutch

prov., since 1839 divided between the Netherlands and Belgium. The Belgian L. is a NE. prov., with Dutch Limburg to N. and E., Antwerp, Brabant, and Liège to W. and S. The Maas (Meuse) R. forms part of the E. boundary. The N. half of the prov. forms part of the sandy Kempen (Campine) plain, agriculturally the poorest ground of Belgium. Industrially, however, this region has a rich future. Extensive coal-fields were located and in 1920 their exploitation began. They are estimated at present to hold a reserve of about 12 milliard tons of coal. Opened to cheap transport by the Albert Canal, this region attracts many industries. To the S. the soil is more productive. Sugar-beet and corn are the most important crops. There are also extensive orchards and the breeding of horses, cattle, and swine is carried on. Hasselt (cap.), Genk, St Truiden, Tongeren, and Lommel are the chief tns. Area 930 sq. m.; pop. (1955) 528,130. See also LIMBURG (Netherlands).

Limburg, prov. of SE. Netherlands, with Germany to the E., N. Brabant (Netherlands), Liège, and Limbourg (Belgium) to the N., W., and S. It is drained by the Maas (Meuse) and the Roer. In the N. is part of an extensive marsh, the Peel. Its cattle are famous, and coal is mined. Maastricht (cap.), Heerlen, and Roermond are the chief manufacturing tns. The prov. was the scene of considerable fighting in Nov. 1944, during the advance of the Brit. Second Army and the U.S. Ninth Army against the Ger. occupying forces. In 1949 a small area of Germany near Maastricht was transferred to Dutch sovereignty. Area 850 sq. m.; pop. 801,135. See also LIMBOURG (Belgium).

Limburg an der Lahn, Ger. tn in the Land of Hessen (q.v.), 22 m. NNW. of Wiesbaden (q.v.). It has a splendid Romanesque cathedral with 7 towers, a 13th-16th-cent. castle, and a 14th-cent. bridge. Iron is mined in the dist., and there are machinery, textile, glass, and leather industries. Pop. 16,000.

Limbus, see LIMBO.

Lime is the common name for calcium oxide, CaO. It can be obtained pure by burning calcium in oxygen, but commercially it is prepared by strongly heating limestone or calcium carbonate,  $\text{CaCO}_3$ , in a lime-kiln:  $\text{CaCO}_3 = \text{CaO} + \text{CO}_2$ . Carbon dioxide escapes, and quicklime, L. shells, burnt L., or caustic L. remains. When wetted a rise in temp. occurs, and the resulting mass is known as hydrated, slaked, or slack L.,  $\text{Ca(OH)}_2$ , chemically named calcium hydroxide. L. is most commonly used by farmers and gardeners. The action of L. upon soils containing a large amount of organic matter is a disorganising one, making plant food available to the crop and burning up decomposing organisms. For this reason L. must only be applied to soils which contain plenty of organic material, such as animal manures or decayed vegetation. On poor light land L. accentuates the poverty. In addition to this action,

freshly slaked L. is of great value as a fungicide. In soils where turnip culture has been impossible owing to club root, applications of L. for 2 or 3 successive seasons have made it possible to grow a good crop. Ground limestone, powdered limestone rock, or chalk is frequently applied to land, and though the action is slower the ultimate effect is the same. Dressings of marl are applied to land, chiefly for the L. contained in it. Much agric. land still depends for its L. on the heavy dressings applied many years ago. Slaked L., as mixed by builders with sand for mortar and plaster, sets by reason of its loss of water and absorption of carbon dioxide from the air, and consequent hardening.

Lime, fruit of sweet L. (*Citrus aurantifolia*) and the W. Indian L. (*C. medica acida*). It is greenish-yellow in colour, about 1½ in. in diameter, and almost globose, but with a nipple at the top, and has a smooth, shiny rind. The juice is very acid, and is much used as a summer drink.

Lime, or Linden, handsome and useful deciduous tree. *Tilia cordata*, the small-leaved L., while hardy and quick growing, is cleaner and handsomer than *T. vulgaris*, the common street tree throughout Europe and in the Berlin promenade, Unter den Linden. *T. platyphyllos* has large, hairy leaves, which often fall in Aug. L. flowers are very attractive to bees.

Lime-light, illuminating effect produced by heating lime to an extremely high temp. The principle of L. is based on the fact that calcium oxide, like the alkaline earths generally and the rare earths, withstands the disintegrating effects of heat to a high degree. They are very difficult to fuse, and are bad conductors of heat, so that when intense heat is applied to the surface of one of these substances the temp. of the area rises immediately to the point at which the radiant energy is emitted in the form of brilliantly white light. This principle has been adopted in the manuf. of gas mantles, which are suspended in an atmosphere of non-luminous flame. L. has been used in the theatre, in signalling apparatus, and in optical or 'magic' lanterns, but for many years electric lighting has rendered it obsolete.

Lime Water, solution of calcium hydroxide. Calcium oxide, or quicklime (CaO), reacts with water with the evolution of considerable heat. The lumps of lime crumble to powder, and the product is called slaked lime (calcium hydroxide,  $\text{Ca(OH)}_2$ ). If sufficient water be added to bring it to a creamy consistency, the product is called milk of lime; when water is added in sufficient amount to produce a clear solution, L. W. is formed. L. W. has an alkaline reaction and has useful medicinal properties. In the chemical laboratory it is used as a convenient test for carbon dioxide, which turns it milky owing to the precipitation of finely divided calcium carbonate.

Limehouse, riverside par. in the bor. of Stepney, E. London, deriving its name from the lime kilns that existed there

from medieval to recent times. The Regent's Canal Dock is on its W. side, and there is a Chinese quarter in and around the street called Pennyfields.

**Limeira**, tn on railway in the N. of São Paulo, Brazil. It is a centre for orange cultivation, and has a modern packing plant. There is also silkworm culture and mulberries are grown. Pop. 30,000.

**Limerick**: 1. W. co. of the Rep. of Ireland, in the prov. of Munster, bounded N. by the estuary of the Shannon. The surface is mostly level, but in the S. and SE. it is hilly, and the Galtee Mts reach a level of 3015 ft. The prin. riv. is the Shannon, navigable up to L. city, and famous for its salmon fisheries, Castleconnell being one of the centres. Above L. are the rapids of Doonas and Castle-troy. The fertile Golden Vale lies mainly in this co., and the pasturage is excellent, the rearing of cattle, sheep, pigs, and poultry being extensive; corn, sugar-beet, and potatoes are grown. Woollen goods are produced, dairy produce marketed, and there are flour- and meal-mills. The co. returns 7 members to the Dail. Area 1062 sq. m.; pop. 90,419.

2. Co. bor. and city of above co. It lies on the banks of the Shannon and includes King's Is. Originally a Dan. settlement, L. has a stormy hist., culminating in the sieges of 1690-1, when the defence, led by Patrick Sarsfield against William III and Gen. Ginkel, resulted in the Treaty of L. (1691). It is divided into 3 parts: Eng. Tn on the is., which is the old city, Irish Tn, and Newtown Pery, the modern quarter. On King's Is. is a fine Norman building, King John's Castle. The cathedral of St Mary on the is. dates from 1142. St John's cathedral and the Dominican, Redemptorist, Jesuit, Augustinian, and Franciscan churches are examples among many of contemporary church architecture. As a port L. is the most important on the W. coast, having a graving dock and about 3000 ft of quay, and considerable trade. The beautiful L. lace is made at the convent of the Good Shepherd. Pop. 50,820.

**Limerick**, 'metrical frivolity' of 5 lines of verse of which the first, second, and fifth rhyme, with an intermediate distich. The following example by Langford Reed celebrates the tn of its origin with, however, a change of accent:

'All hail to the town of Limerick,  
Which provides a cognomen, generic,  
For a species of verse  
Which for better or worse,  
Is supported by layman and cleric.'

The L. originated as a popular song, made up impromptu and sung at Irish feasts of 100 years ago, each L. dealing with an inhab. of some Irish tn. The first printed L. appears in Chap Books (q.v.), dated 1820. The nursery rhyme, *Hickory, Dickory, Dock*, is possibly the oldest L. Lear's *Book of Nonsense*, 1846, started a vogue for L.s to which Rossetti, Swinburne, and Ruskin subscribed. In 1907 a popular L. craze was started by a series of competitions in the *London Opinion* which at

length excited the hostility of the National Anti-Gambling League. See Langford Reed, *Complete Limerick Book*, 1924.

**Limestone**, rock consisting principally of calcium carbonate ( $\text{CaCO}_3$ ). Many varieties contain a good percentage of impurities, which affect the colour of the rock. Pure L. is white; the presence of iron oxides gives a yellowish appearance, iron sulphide causes a bluish colour, and lime silicates in crystalline L.s give rise to many different colours. Silica is often present in stratified L.s in the form of chert or flints. Magnesian L. contains carbonate of magnesium. L.s vary in physical properties according to their constitution, but fairly pure L. has a hardness of 3 and a specific gravity of from 2.6 to 2.8. It is not soluble in pure water, but is readily acted upon by dilute acids, and dissolves in water containing carbon dioxide in solution, which converts it into the soluble calcium bicarbonate. Water in coming through the air as rain, and in percolating through the soil, dissolves quantities of carbon dioxide which is present as the product of combustion or oxidation. In L. regions the water of springs, streams, etc., wears away the rock in a typical manner. Rounded boulders in the beds of streams, deep channels with occasional pot-holes, underground water-courses, caves, and waterfalls are all characteristic of L. dists. Large quantities of dissolved L. are carried out to sea, where it becomes the material from which many marine animals construct their shells or skeletons. When the animals die their skeletal remains fall to the bottom of the ocean, and, in course of time and with alteration of level, form layers of chalk and L. Chalk is the best-known organic L., and is made from the shells of certain species of foraminifera. Oolitic L.s consist of small rounded grains and may contain many fossils. Many varieties of crystalline L.s are formed by regional metamorphism, or by the thermal effects of neighbouring plutonic intrusions. These lose their organic structure and are commonly known as marbles. L. may also be deposited from solution without the agency of any animal; in this way stalactites and stalagmites are formed. L.s are used for the manuf. of lime and cement, as a flux for iron ores, and for building purposes. Crystalline L.s are used for making statuary and erections of an ornamental nature.

**Limit**, in mathematics, is a finite quantity which the sum of an infinite convergent series approaches but never reaches, e.g. the series  $1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \dots$  has 2 as its L. (see GEOMETRIC PROGRESSION). The term is also used for each of the values between which the definite integration of a variable is made.

**Limitation of Estates** means the marking out by the grantor of land (q.v.) to another or others of the quantum of estate (q.v.) or interest which each is to take in the land conveyed. It is advisable always to use recognised technical expressions in limiting an estate, because

unless appropriate words of limitation are employed the intentions of the grantor may be defeated. (See ESTATE as to the words for a grant in fee simple and fee tail; and also under ESTATE and DE DONIS.) A grant by deed to X without more confers a life estate only, but by the Wills Act, 1837, a devise of real estate without any words of limitation will, in the absence of an apparent intention to the contrary, pass the whole fee simple or other the whole disposable estate or interest of the testator. As to perpetuities or remoteness of limitation, see PERPETUITY and LAND LAWS. See also CONTINGENT REMAINDER; REVERSION; SETTLEMENTS; SHELLEY'S CASE, RULE IN.

**Limitations, Statutes of.** It is the policy of the law to impose a time limit on the right to bring actions, not only that there may be some end to litigation, but because, if not, the resulting harm to vested interests that may have grown up in the meantime on the strength of a certain state of circumstances would probably be altogether disproportionate to the detriment of the individual who has lost his right of action by lapse of time. The various periods of limitation in the different classes of actions are all the creation of statute law, the common law (q.v.) permitting an action to be maintained at any distance of time from the accrual of the cause of action. The earliest of the Statutes of L. is that of 1623, which barred all personal actions, i.e. to recover debts on simple contracts (see CONTRACT; DEBT) and torts (civil wrongs), after 6 years (slander excepted). The Mercantile Law Amendment Act, 1856, extended the Act of 1623 to actions on merchants' accounts. It is to be noted that the Statutes of L. do not, for the most part, expressly destroy the right, they only bar the remedy for its infringement; and though the effect may, generally speaking, be the same, the right may often be available as a set off, e.g. if A sues B on a debt for £50, B can set off a stale debt from A to B; and again a person having an equitable (see EQUITY) charge upon personal property to secure a debt can enforce his security after the debt itself is barred. But the Real Property Limitation Act, 1874, expressly extinguished title to land where the owner, being out of possession, does not sue to recover his land within 12 years. The statutes run from the earliest time at which an action could be brought, e.g. if A sells B goods on credit, A's right to sue for the price arises only on the expiration of the credit, and the period commences from such expiration; similarly if one of the parties to a contract dies before the cause of action arises, the period runs only from the moment there is a personal representative capable of suing. Once time begins to run it does so continuously, notwithstanding the happening of something to prevent a person from bringing an action. But a debt may be revived so as to cause the period to begin to run afresh; for, as said above, the debt itself is not extinguished, and a new promise to pay will be

inferred from (1) part payment, or (2) a written acknowledgment of indebtedness. But such part payment or acknowledgment must be of such a nature as not to be inconsistent with an implied promise to pay the whole debt, e.g. for the debtor to write 'I admit I owe the money but the goods you sold me were so bad that I should not think of paying for them' is not enough; and again if A owes B £50, and after 3 years pays £10 on the supposition that this is all he owes, such part payment will not stop the period from running. An acknowledgment or part payment by 1 of 2 joint contractors or debtors will bind the other. If an acknowledgment or part payment is made by letter written 'without prejudice,' the continuity of the period will not be broken. These and other fundamental principles of the Statutes of L. are for the most part repeated in the consolidated Limitation Acts, 1939-54. Actions for damages for personal injuries caused by the commission of torts (see TORT) or by breaches of contract must be brought within 3 years of the accrual of the right of action. Actions in tort and simple contract (other than for damages for personal injuries), recognisances, and for an account are barred after 6 years. Actions on a specialty contract (i.e. on a deed) or on a judgment are barred in 12 years; actions to recover a penalty or forfeiture, in 2 years. A crown action to recover land is barred after 30 years (but an action to recover foreshore is not lost until 60 years); actions for recovery of land by eleemosynary or spiritual corporations are barred in 30 years; but actions for the recovery of land by any other persons are barred in 12 years. If the plaintiff has been in possession of the land and been dispossessed or otherwise has discontinued his possession, the time begins to run from the date of dispossession or discontinuance. No right of action to recover land accrues or continues unless there is 'adverse possession,' i.e. unless the land is in the possession of some person in whose favour the period of limitation can run. No right of action can be preserved by merely formal entry. An action to enforce a right to present an eccles. benefice (see ADVOWSON) as patron cannot be brought after a period during which 3 clerics in succession have held the benefice adversely to the right of the claimant or 60 years, whichever period last expires. Actions to recover money secured on mortgage or the proceeds of the sale of land and foreclosure actions are barred in 12 years. No period of limitation prescribed by the Act of 1939 applies to an action by a beneficiary under a trust, being an action in respect of a fraudulent breach of trust to which the trustee was a party, or being an action to recover trust property from the trustee; otherwise action by a beneficiary is barred after 6 years. Actions against public authorities are barred after 3 years except where the act, neglect, or default of the authority is a continuing one, when the right of action will only accrue after the act, etc., has

ceased. The Act applies to arbitrations in the same way as to actions in the high court. Persons under disability of infancy, insanity etc., have 6 years' grace (3 in personal injuries cases) in which to sue after the disability has ceased. A disability arising after the period has begun will not stop the period; nor will ignorance of one's right of action, unless such ignorance was induced by fraud. As to the application of the Statutes of L. to suits in equity, see LACHES. Actions in tort maintainable against the estates of deceased persons must be brought within 6 months after probate or letters of administration have been granted to their personal representatives.

**Limited Liability, see COMPANY.**

**Limma** (Lat. *limum*, from; Gk *leipein*, to leave), interval in the musical system of the anc. Greeks, which does not appear in modern music by reason of its smallness. The Greeks determined the L. by subtracting 3 whole tones, each in the proportion of 8:9, from the perfect fourth (3:4), thus obtaining the ratio 243:256.

**Limni, see LEMNOS.**

**Limnos, see LEMNOS.**

**Limoges**, Fr. tn, cap. of the dept of Haute-Vienne, on the Vienne. It has Rom. remains, including a fountain and an amphitheatre. The seat of a bishopric, its cathedral is partly 13th cent. L. enamels were known as early as the times of the Merovingians (q.v.). It is famous for its porcelain, manufs. shoes and textiles, and has distilleries. Renoir, Vergnaud, Jourdan, Sadi Carnot, Michel Chevalier, Bugéaud, and Aguesseau (qq.v.) were b. here. Pop. 106,000.

**Limón**: 1. Prov. of Costa Rica (q.v.), on the Caribbean, traversed by the foaming R. Reventazón, and bounded inland by the Talamanca massif of the Meseta Central. Area 3600 sq. m.; pop. 48,760.

2. Chief seaport of Costa Rica, on the Caribbean coast, 103 m. by rail E. of San José. There are steamship lines to New York, New Orleans, and Europe. L. has a fine harbour; most of the country's exports, of coffee, dyewoods, rubber, and some bananas, pass through the port. There is a wireless station and an airport. L. is a popular resort. Pop. 18,830 (largely of Negro extraction).

**Limonite, Brown Iron Ore, Brown Haematite, or Bog Iron Ore**, hydrated ferric oxide with the formula  $2\text{Fe}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$ . It does not occur crystalline, but is found in fibrous, earthy, or concretionary masses. Its colour ranges from yellow to dark brown, and its streak is distinctly yellowish. It has a sp. gr. of 3½ to 4, and a hardness of 5½. It is often formed from other oxides or pyrites by the influence of the weather, and is therefore found on the outcrop of other iron ores. Its occurrence in bog or meadow land has given rise to the name 'bog iron ore.' Yellow ochre is clay mixed with L. Abundant deposits of L. have been found in the oolites and other sedimentary rocks.

**Limonium**, Sea Lavender, a genus of 200 ann. or perennial herbs, family

Plumbaginaceae; *L. bellidifolium*, *L. binervosum*, and *L. vulgare* are native to Britain; others are grown in gardens or under glass.

**Limonium, see POITIERS.**

**Limousin**, anct prov. of central France, now forming the dept of Corrèze, Haute-Vienne, and Creuse, and parts of Charente and Dordogne. In 1152 it came into the possession of the English, Henry II acquiring it with Eleanor of Aquitaine as part of her dowry; but in 1369 it was restored to France. Cap. Limoges.

**Limousins (the Hated L.)**, group of cardinals, natives of the prov. of Limoges, who dominated the papal court at Avignon from Clement VI to Gregory XI (1342-78).

**Limoux**, Fr. tn, cap. of an arron., in the dept of Aude, on the Aude. It is a picturesque tn, and produces a semi-sparkling white wine called *blanquette de Limoux*. Pop. 7600.

**Limpets**, gastropod molluscs with oval tent-shaped shells firmly attached to rocks or stones. The adhesion is made with a circular mass of muscle which when raised in the centre forms a sucker. The shell is lined with a fringed mantle which bears a circle of folds that take the place of the gills of other molluscs. Within the L.'s mouth lies a long radula or spiny tongue armed with about 2000 glassy hooks. This is used to collect vegetable food. *Patella vulgata*, the common limpet, is widely distributed on Brit. and other rocky coasts. Some tropical species attain great size.

**Limpopo, Innampura, or Crocodile River**, riv. of S. Africa, rising in the Magaliesberg to the W. of Pretoria in the Transvaal. It flows in a semicircular course, forming the boundary on the W. of the Transvaal. Vessels of 200 tons are able to navigate it for 60 m., but its mouth is obstructed by sandbars. Its prin. trib. is the Olifants. It has a total length of about 1000 m., and is the boundary between N. Transvaal and S. Rhodesia.

**Limpfield**, tn and par. of Surrey, England, in Godstone (q.v.) rural dist. There is a 12th-cent. church. Pop. 3167.

**Lin Yu-tang** (1895- ), Chinese-Amer. writer, b. Amoy. He studied at Harvard and Leipzig, and in 1923 became prof. of Eng. philology at Peking Univ. In 1936 he moved to America, where he spent some years. In 1954 he was appointed chancellor of the new Chinese Univ. at Singapore. Among his chief works are *My Country and my People*, 1935, *The Importance of Living*, 1937, *Wisdom of Confucius*, 1938, *Moment in Peking*, 1939, *A Leaf in the Storm*, 1941, *Wisdom of China and India*, 1942, *The Vigil of a Nation*, 1945, and *Wisdom of Lao-se*, 1948. In 1949 he compiled *The Wisdom of China*.

**Linacre**, Thomas (c. 1480-1524), physician, humanist, and divine, b. Canterbury. He visited Europe and on his return was made court physician to Henry VII, and subsequently to Henry VIII and Mary. In 1503 he took orders and became rector of Mersham and prebend of Wells. He was a founder of the Royal College of

Physicians of London (1518) and its first president. His chief works are his *Lat. trans. from Galen*, amongst them being *De temperamentis* and *Methodus medendi*. He was among the first to teach Greek at Oxford, where Krasmus and Sir Thomas More were among his pupils. See lives by J. Johnson, 1835, and Sir W. Osler, 1908.

**Linares:** 1. Sp. tn in the prov. of Jaén. It has rich mines, worked since ancient times, of argentiferous lead and copper. Sheet-lead, pipes, rope, and explosives are manu. Near by are the ruins of the Rom. tn of Castulo. Pop. 51,000.

2. Tn of Mexico, prov. Nuevo León, 65 m. S.E. of Monterrey, is a sugar and cotton-raising dist. It gives its name to a bishop's sec. Pop. 10,000.

3. Inland prov. of S. Chile (q.v.), barren and arid in the centre but fertile in the N., giving typical Andean crops. There are sev. local volcanic peaks, and the prov. is intersected by the headwaters of the R. Maule. Area 3790 sq. m.; pop. 146,260.

4. Cap. of the above prov., a rail and road junction 166 m. SSW. of Santiago, and a market for agric. produce. The prin. industries are milling, tanning, and brick-making. Pop. 17,000.

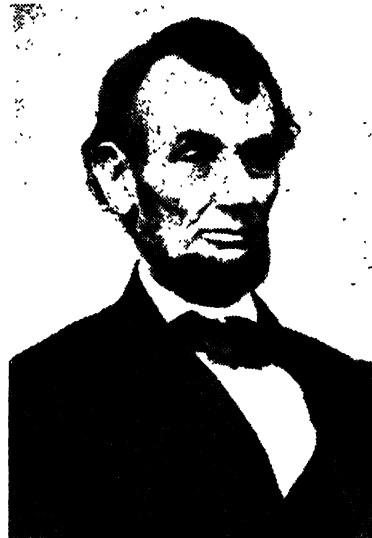
**Linaria**, genus of about 125 ann. or perennial herbs, family, Scrophulariaceae; *L. cymbalaria* is well known as Kenilworth Ivy. Mother-of-Thousands, Pennywort, and Pennycuif.

**Linás**, or **Lynas Point**, cape off the N. of Anglesey, N. Wales, 2 m. E. of Amlwch. It has a lighthouse 128 ft high, and is a signalling station for Liverpool vessels.

**Lincoln**, **Abraham** (1809-65), 16th President of the U.S.A., and one of the greatest of America's national heroes, was b. near Hodgson's mill, in what is now Larue co., Kentucky. The log cabin in which he was b. was for many years unprotected, but is now safeguarded in a stone structure. His father, Thomas L., was both ignorant and shiftless, but his mother, Nancy Hanks, was a woman of superior character. The family descent on his father's side has been traced back to a Samuel L., of Hingham, England, who emigrated to the colony of Massachusetts in 1637. L. was left motherless at an early age, soon after the family's move to S. Indiana, where the elder L. married a widow with sev. children, Sarah Bush Johnston, always remembered with gratitude and affection by her stepson. For 10 miserable years this family lived in a log cabin in the forest. Abraham had to make clearings, chop logs, and plough with a crude implement. He grew up physically strong but with little education. He earned his living by splitting rails, keeping a country store, acting as postmaster and surveyor, and working on the riv. as a boatman. On one of his trips he went as far as New Orleans, where he saw something of slavery which made a lasting impression on him. In his small circle he became popular. But he was 25, and nothing had succeeded with him until his neighbours elected him to a term in the Illinois Legislature. He then read law and was admitted to the Bar at the age of

28. He returned to Springfield, and in 1842 married Mary Todd, a marriage which was not entirely happy. In 1846 he was elected to Congress, but served only one term. From 1845 to 1861 he practised law with W. H. Herndon.

It was the question of extension of slavery in the ters. of the U.S.A. which stirred L. into action. In 1854 Stephen A. Douglas, senator from Illinois, had aroused the N. by his Kansas-Nebraska Bill, which repealed the Missouri compromise (see MISSOURI COMPROMISE).



E.N.A.

ABRAHAM LINCOLN

Douglas found himself universally denounced in the N. and soon afterwards (1858), when he was again a Democratic candidate for U.S. senator from Illinois, the Illinois Republicans, regardless of the support which Republicans in the N. were giving to Douglas for his subsequent resistance to the pro-slavery advocates in Kansas, put L. forward as their candidate. The nation at large was surprised, for few people had heard of this Springfield lawyer. When the Republicans nominated him at Springfield L. addressed the delegates and used words which were to be quoted over and over again: 'A house divided against itself cannot stand. I believe that this government cannot endure permanently half slave, half free. It will become all one thing or all the other.' L. then challenged his opponent to a series of joint debates, a daring challenge in view of Douglas's reputation as the greatest orator and debater in the U.S.A. Douglas promptly accepted. L.



more than held his own. He pinned the debates down to one question—that of slavery in the ters. In the end L. had a majority of the popular vote, but the Legislature chose Douglas. L. was shut out of the Senate, where his field would have been limited. But he had an opportunity for bigger things, for now Republicans were looking for a candidate for the presidency in 1860, and his name began to be canvassed. The Democrats had split over the slavery question. It was felt that the Republicans would surely name the next president. Wm H. Seward seemed the outstanding candidate. He had been governor of New York and he was the acknowledged leader of his party. But, though in the S. slave states it was freely said that if L. was elected they would secede from the union, L. was chosen, receiving 180 electoral votes, 152 being sufficient to elect.

The threat of the S. to secede proved to be no idle one. Even before L. was inducted into the presidency 7 S. states led by S. Carolina had proclaimed their formal secession, had formed the S. Confederacy, and chosen Jefferson Davis as president. Very soon the Confederates had seized most of the gov. forts, navy yards, and post offices. During that fateful winter Congress made futile attempts to bring about a peaceful settlement. When L. was inaugurated on 4 Mar. 1861, his address was a conciliatory one. He declared he had no intention of interfering with slavery where it already existed. But he said the union was indissoluble, and that no state had a right to secede from it. He would execute the laws in all the states, and declared the union must and would maintain and defend itself. In April what everybody feared came to pass. The Confederates fired upon and captured Fort Sumter, guarding the port of Charleston. The time for union action had come, and L. was quick to take it. Two days later he issued a call for 75,000 volunteers, and from every vil. men and boys came to enlist. The S. responded. The remaining S. states seceded. L.'s call for volunteers was answered by Davis, who called for 100,000 men. The great civil war, which had been threatening for 40 years, was now a reality. L.'s test had begun. There followed the anxious years in which things seemed to be going against the union. But on 1 Jan. 1863 L. showed how far he had advanced by proclaiming emancipation of the slaves in all the states then in rebellion. By his fiat he freed 4,000,000 human beings. L.'s problem at this time was to find a good general. Eventually he found U. S. Grant. In Mar. 1864 L. made him commander-in-chief of all the union armies. When some averred that Grant was a drinking man L. retorted that he wished Grant would give some of the same brand of whisky to his other generals so that they too might win victories like Grant.

The war stubbornly went on. The N. was despairing. In the midst of this came a presidential election. The leaders

of the Republican party, who never understood and never liked L., were against him. They backed one of his own cabinet, S. P. Chase, for the nomination, but Chase withdrew when his own state declared for L. The Democrats nominated Gen. McClellan who for so long headed the union armies. The war, however, was taking a new turn in favour of the N. Adm. Farragut won a great victory at Mobile Bay. Sherman captured Atlanta, and began his famous march to the sea. Sheridan was sweeping everything before him in the Shenandoah valley, thus ensuring the safety of the cap. The people acclaimed L., who received 212 electoral votes to 21 for his opponent. On 3 Feb. 1865 S. leaders met L. at Fortress Monroe in an attempt to bring about peace. But L. would listen to no overtures save on the basis of a restored union and the total abolition of slavery. He also made it clear that he would not treat with the Confederacy as a gov. On 9 April 1865 the greatest of the S. generals, Robert E. Lee, surrendered to Grant at Appomatox. The war was virtually over. On the night of 14 April 1865 L. attended a theatre. John Wilkes Booth (q.v.), an actor, crept to the box where the president sat and shot him through the brain. On the morning of the 15th he d.

A whole nation mourned his death. He was unique in America's hist. With little formal education he had shown all the qualities of statesmanship and revealed himself one of his country's greatest orators. His humour, his patience, his long silence under misunderstanding and attack, his steadfast grasp of things when the fate of the nation seemed darkest, his courage when others wanted to yield or compromise, the matchless beauty and eloquence of his Gettysburg speech and the charity and kindness of his second inaugural address were remembered by the people after his death. He is considered great not only by his own countrymen but by the whole world. It is no insignificant thing that in England, where men radically differed upon the question of recognising the Confederacy as a belligerent nation, to-day in most prominent places in London and Manchester there stand monuments to the great American.

*Bibliography.* *The Collected Works of Abraham Lincoln*, ed. R. P. Basler, 1953, is the only fully annotated ed. of L.'s work. There is a selection of L.'s letters and speeches, ed. P. M. Angle, 1958 (Everyman's Library). Many biographies include W. H. Herndon, *Abraham Lincoln, the True Story of a Great Life*, 1930 ed.; P. M. Angle, *The Lincoln Reader*, 1947; B. P. Thomas, *Abraham Lincoln, a Biography*, 1952; C. Sandburg, *Abraham Lincoln: the Prairie Years and the War Years*, 1954. See also J. G. Nicolay and J. Hay, *Abraham Lincoln: a History*, 1890; K. C. Wheare, *Abraham Lincoln and the United States*, 1948; B. Catton, *The Hallowed Ground, the Story of the Union Side of the Civil War*, 1958.

**Lincoln:** 1. Parl., municipal, and co. bor. and city of England, cap. of Lincs, on the R. Witham, 130 m. from London. L. was the anet Brit. tn *Lindos* (marsh or pool). The Romans Latinised the Brit. name as *Lindum*, and the first permanent fortress of the IXth Legion was estab. on the hill top. Its defences have been located by excavation. The title of *colonia* was conferred c. AD 96. The Rom. colony was in the ter. of the Coritani whose cap. was at Leicester. The walls of the colony were extended down the hill slope almost to the riv. in the first half of the 3rd cent.; coin evidence shows that Rom. occupation extended into the 5th cent. Newport Arch, which was the N. gate to the Rom. colony, is the only Rom. archway in the Brit. Isles which still spans a main road used by modern traffic. L. never attained any great size; it was at the Conquest one of the 6 greatest cities of the kingdom, with a considerable trade in wool. Under the Dan. settlement L. was one of the 5 bors. of the Danelaw. The Conqueror decided to build a castle there, and L. was chosen as the seat of a bishopric and the place for a cathedral. At that time L. was divided into separate jurisdictions of which only one, the manor of Hungate, or Beaumont Fee, survived into modern times. Other communities, civil and eccles., were formed; such were the Jews, whose settlement is still represented by the Jews' House. Later came the religious houses: Monks Abbey, a cell of the Benedictine abbey of St Mary of York, and St Catherine's priory of the order of St Gilbert of Sempringham; and the friars, whose only remaining building is the beautiful Grey Friars which later housed the grammar school (founded 1090) and to-day is the museum. In 1301 Edward I granted L. a new charter, and after this there gradually developed a select body of common councilmen, who from the 16th cent. onwards met in the present guildhall over the Stonebow gatehouse. Many years elapsed before this gatehouse was completed, and the S. face with figures depicting the Annunciation was not built before about 1520; the royal arms above the arch probably commemorated the visit of James I in 1617. The prosperity of medieval L. was based on the wool trade. The raw wool was brought to L. mainly along the waterways (Fossdyke, connecting the Witham with the Trent, and the Cardyke connecting the Nene and the Witham), and there made up for export to Flanders and the Hanseatic tns. Cloth was being made in L. by 1157, at which date there was a guild of weavers. In 1741 Richard Ellison acquired a lease of the Fossdyke tolls from the corporation, and his improvement of the navigation brought a steady increase in trade. The first railway to reach L. was opened in 1846 and soon there followed the development of industrial enterprises in the manuf. of agric. machinery and, later, heavy engineering products.

The historical features of L. are the castle, the cathedral (see LINCOLN

CATHEDRAL), the Stonebow, and St Mary's Guildhall, a valuable example of 12th-cent. architecture. The castle was built by William the Conqueror in 1068 to supplement the defences of the city, whose Rom. walls and gates had for the most part survived. The upper tn was annexed to the new castle as a kind of outer bailey, hence the name *Bailgate* of modern time. The castle had 2 gateways, the E. gate opening upon Castle Hill, inside the city, and the W. leading to open country; the E. gate is still in use though the round Norman arch has been covered by a 14th-cent. pointed arch with flanking turrets. L. castle departs from the usual Norman plan in having 2 mounds instead of 1; both stand on the S. side of the castle yard, their bases being only about 200 ft apart. The Stonebow stands on the site of the S. gate of the lower Rom. enclosure. On the roof is the mote bell (1317), still rung to summon council meetings. The most interesting buildings on Steep Hill are the Jews' Houses. In the Strait is the one known as the Jew's House; the front has been mutilated but it preserves its beautifully moulded doorway with interlacing pattern. Next door to it is the Jews' Court, rescued from destruction under slum clearance legislation and restored by the Lincs Architectural and Archaeological Society. These houses and that popularly known as Aaron's House belong to the 12th cent. when L. was at the height of its prosperity as a centre of the wool trade. The Usher Art Gallery contains important permanent collections, including the Usher collection and a collection of works by Peter de Wint (1784-1849), the water-colourist. The High Bridge which spans the Witham and its central portion dates from the 12th cent. On the W. of the bridge are fine examples of half-timbered houses built c. 1540, and on the E. side once stood the wayside chapel of St Thomas of Canterbury, built in the 13th cent. and demolished in 1763. The Grey Friars is approached from the Stonebow by way of Saltergate, but all that now remains is the chapel built about 1230. Adjoining the museum is the central public library, built in 1913 with the aid of a Carnegie grant and designed by Sir Reginald Blomfield. The 3 most interesting medieval par. churches, St Benedict, St Mary-le-Wigford, and St Peter-at-Gowts, are all S. of the riv. In front of St Benedict's is the city war memorial. St Mary-le-Wigford and St Peter-at-Gowts both possess notable Saxon towers. Pop. 70,200. See J. W. F. Hill, *Medieval Lincoln*, 1948, and *Trudor and Stuart Lincoln*, 1956.

2. Tn in Providence co., Rhode Is., U.S.A. It has cotton manufs. and limestone quarries. Pop. 11,270.

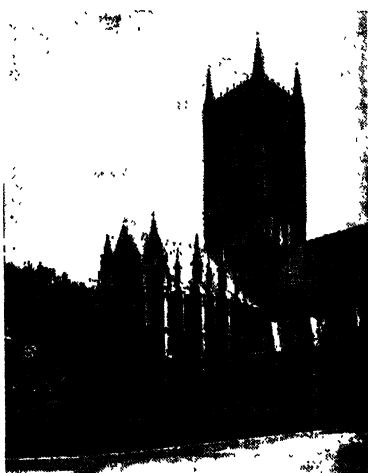
3. Co. seat of Lancaster co., Nebraska, U.S.A., and cap. of the state, 50 m. SW. of Omaha. It is the seat of the univ. of Nebraska, Union College, and the Wesleyan Univ., and the centre of a rich agric. area. L. is the second largest city in the state and has 3 airports. It has oil refining and food processing, and manufs.

concrete products, farm, printing, and office equipment, machine parts, bricks, flour, feed, and dairy products. Pop. 98,884.

**Lincoln Cathedral.** The cathedral church of Lincoln exhibits the growth of Eng. architecture from its early Norman stages to the most fully developed forms of Eng. Gothic. On the death of the last Saxon bishop in 1067, King William appointed Remigius, almoner of the abbey of Fécamp, to succeed him and c. 1073 Remigius removed the see of the bishops of Lindsey, traditionally associated with Stow, 10 m. from Lincoln, from Dorchester to Lincoln and here he built a church on the highest part of the city. The central portion of the W. front and the lower stages of the Norman towers are surviving portions of his church, a grim and massive building, half fortress, half church. After a disastrous fire in 1141 this church was restored to more than its former beauty by the third Norman bishop, Alexander the Magnificent. The 3 richly decorated Norman doorways, the arcading above the lateral recesses, the upper stages of the Norman towers, and the gables on the N. and S. faces of the W. towers belong to this period. In 1185 an earthquake shattered the church and a new work of restoration was begun by Hugh of Avalon and carried on by his successors. The choir of St Hugh and 2 bays of the E. wall of the great transept were completed before 1200, and during the next 50 years the nave, the screen surrounding the Norman front, the chapter-house, and the lower stages of the central tower were added to the building. The canonisation of St Hugh in 1220 led eventually to the erection of the Angel Choir, which replaced the apsidal end of St Hugh's church, and into this choir in 1280 the body of the saint was translated and deposited in a costly shrine. The cloister belongs to the closing years of the 13th cent. and the completion of the central tower to the period of Bishop John of Daldersby (1300-20). The latest stage was reached about 1380 by the erection, above the W. towers, of the great belfries which have been described as 'among the noblest towers in Christendom.' Among the various works of restoration in later times the most extensive was begun in 1922 and completed in 1932 at a cost of £140,000, the stability of the building having been prejudiced by various disasters of fire, earthquake, and tempest. A further work of restoration became necessary owing to the discovery, in 1935, of the dangerous condition of the Angel Choir and the tracery of the E. window.

The lattice-work around the arch and windows is a feature of the period of Bishop Grosseteste (1235-53) (q.v.). The statues of kings above the central door were inserted late in the 14th cent. The central tower, the loftiest of Eng. cathedral towers, is 271 ft high. The perfect proportions of this tower and its combination of majesty and grace, of richness and simplicity, constitute it one of the

grandest towers in the world. In it hangs 'Great Tom,' a bell weighing 5½ tons. Begun in 1255 and completed early in the 14th cent., the Angel Choir, with its 5 bays, is one of the crowning achievements of Eng. Gothic architecture. The choir takes its name from the 30 figures of angels in the spandrels of the arches of the triforium. Above the easternmost pier on the N. side is the tiny celebrated figure of the Lincoln Imp. Under the sanctuary arches is a tomb which bears an inscription by Bishop Fuller (1667-75) indicating that the body of Remigius rests here. Some years ago a leaden coffin containing



LINCOLN CATHEDRAL FROM THE NORTH-WEST

relics, with a paten and chalice and a fragment of a pastoral staff, was discovered within the tomb and justifies his attribution. Of the 2 Perpendicular chapels which flank the porch the easternmost was built by Bishop Russell (d. 1494), the other by Bishop Longland (d. 1547). The chapter-house (1220-35), connected with the E. transept by a vestibule and cloister, is the earliest chapter-house in the Early Eng. style.

The nave of 7 bays in the Early Eng. style was completed during 1200-53. The rose windows in the N. and S. ends of the great transept are known as the Dean's Eye and the Bishop's Eye.

From the S. aisle can be seen the beautiful double arcading of the choir, a feature of the work of Geoffrey de Noyers, architect in St Hugh's time. This aisle contains the mutilated shrine of little St Hugh, the Christian boy whose death in 1255 was laid to the charge of the Jews of Lincoln. The story is recalled by Chaucer in the *Prioress's Tale*, and is the subject of

anot ballads. In this transept are buried sev. bishops of Lincoln, the most celebrated being Robert Grosseteste, whose tomb was a place of pilgrimage. The original tomb having been destroyed by the Puritans in the 17th cent., a new one was provided in 1953, the seventh centenary of his death. The interest of St Hugh's choir is that it is one of the very earliest examples of the Early Eng. style. The cloister, entered by a covered passage from the N. transept, was built by Bishop Sutton about 1296. The library above it was designed by Sir Christopher Wren. Among the treasures of the cathedral is one of the 4 original copies of Magna Carta.

**Lincoln College**, Oxford, founded in 1427 by Richard Fleming, Bishop of Lincoln. It was reorganised by Thomas Rotherham, Archbishop of York, and lord high chancellor in 1479, who thus earned for himself the title of second founder. Mark Pattison was rector from 1861-84. John Wesley, Lord Crewe, John Morley, and Edward Thomas were distinguished members of the college.

**Lincoln Judgment**, The, celebrated Eng. eccles. suit which came up in 1889, the Bishop of Lincoln, Edward King, being cited before the Archbishop of Canterbury (Dr Benson) to answer charges of various ritual offences committed at the administration of Holy Communion in the church of St Peter-at-Gowt's and in Lincoln Cathedral in Dec. of 1887. Proceedings were commenced in June 1888 by a petition presented by the promoters (2 of whom were inhab. of the diocese of Lincoln, and 2 parishioners of St Peter-at-Gowt's) to the archbishop. The matter was referred to a committee and the case then remitted to Dr Benson, who heard it in Lambeth Palace between July 1889 and Feb. 1890. The offences alleged against the Bishop of Lincoln were, for the most part, breaches of various rubrics in the communion service of the Prayer Book, viz. the mixing of water with the wine, the non-visibility of the performance of the manual acts, the making of the sign of the cross at the benediction, etc. It was argued that a bishop is not a 'minister' and thus not bound by the rubrics. Judgment was given by the archbishop in Nov. 1890, but he confined himself to the legal declarations acquitting the bishop on 4 of the 7 charges, and pronouncing no motion in respect of the 3 breaches. King showed his loyalty to authority by altering his practice in these 3 points. The promoters appealed to the Judicial Committee and their appeal was heard in 1891, judgment being given in Aug. 1892, and the appeal failing on all points. The case has a permanent importance, first, because certain disputed questions of ritual were legally decided, and, secondly, because the jurisdiction of the Archbishop of Canterbury to try one of his suffragan bishops for alleged eccles. offences, alone, was declared to be well founded and legal. See G. W. E. Russell, *Edward King*, 1912.

**Lincoln Mount**, highest peak (14,284 ft) in the Park Range of the Rocky Mts, 12

m. NE. of Leadville, Colorado, U.S.A. Gold, silver, lead, copper, zinc, and molybdenum mines are near.

**Lincoln Park**, city in Wayne co., SE. Michigan, a residential suburb of Detroit, U.S.A. Pop. 29,810.

**Lincoln Sheep**, see SHEEP.

**Lincoln's Inn**, see INNS OF COURT.

**Lincolnshire**, Charles Robert Wynn-Carrington, 1st Marquess of, and 1st Earl Carrington (1843-1928), politician, eldest son of 2nd Baron Carrington, was educ. at Eton and Cambridge. He was Liberal M.P. for High Wycombe, 1865-8, captain of the Royal Bodyguard, 1881-5, and governor of New S. Wales, 1885-90. Created an earl in 1895, from 1892 to 1895 he was lord chamberlain of the household, chairman of the National Liberal Club, and an energetic member of the L.C.C. President of the Board of Agriculture from the beginning of Campbell-Bannerman's administration, 1905, he resigned that post in 1911, and was lord privy seal till Feb. 1912, when he retired with a marquessate.

**Lincolnshire**, E. co. of England, bounded E. by the N. Sea and the Wash. It is the second largest co. in England, and possesses, including the shore of the Humber, nearly 110 m. of coast, mostly marshy, but with long stretches of sand. The co. generally is flat, a considerable part being fens and marshes, but there are 2 ranges of hills, the Lincoln Edge, or Heights, or the Clift, on the W. running from Grantham to Lincoln and on again to the Humber, and the Wolds running from Spilsby to Barton-on-Humber. The prin. rivs. are the Humber, Trent, Witham, and Welland. A large part of the co. to the SE. of Lincoln is occupied by the Fens (q.v.). The soil as a whole is rich, and it is one of the first agric. cos. in England. It has the largest bulb-growing industry in the U.K. A quantity of grain is grown, the largest crop being barley, and cattle and sheep are reared in large numbers, also a fine breed of horses. Limestone, freestone, and ironstone are quarried. Scunthorpe is one of the largest steel-producing centres in the country, and chemical industries have been estab. on the Humber bank near Grimsby, the largest fishing port in England. The co. has machine and implement factories, and also brick-fields. It is divided into 3 'parts' (Lindsey, Kesteven, and Holland), and 9 parl. divs., each returning 1 member. Area 2640 sq. m.; pop. 705,822. See Victoria Co. Hist.: *Lincolnshire*; T. Allen, *The History of the County of Lincoln* (2 vols.), 1834; *Lincolnshire Domesday and the Lindsey Survey*, trans. and ed. by C. W. Foster and T. Longley (Lincoln Record Society), 1925; C. Brears, *Lincolnshire in the 17th and 18th Centuries*, 1940; A. Mee, *Lincolnshire* (The King's England series), 1943; M. W. Barley, *Lincolnshire and the Fens*, 1952.

**Lincolnshire Handicap**, see HORSE-RACING.

**Lincolnshire Regiment**, The Royal, formerly the 10th Foot, was raised in 1685

by the Earl of Bath. It took part in Marlborough's campaigns during the War of the Sp. Succession, and gained honours at Blenheim, Ramillies, Oudenarde, and Malplaquet. In 1801 it fought in Egypt, where it gained the 'Sphinx' badge. During the Peninsular campaign it served on the E. coast of Spain. In 1842 it went to India, and fought at Sohraon, Multan, and Gujrat during the first Sikh war. During the Indian Mutiny it participated in the siege and capture of Lucknow. During Kitchener's Egyptian campaign

Lincolns crossed the Escant Canal and forced a bridgehead over the Turnhout-Antwerp Canal (25 Sept. 1944). The honour title 'Royal' was granted in 1946. The L. R. and the Northamptonshire Regiment are to be amalgamated by 1962.

Lind, James (1716-94), physician, b. Edinburgh. He was apprenticed to a surgeon at the age of 15 and entered the navy as a surgeon 8 years later, serving for 9 years. In 1748 he left the navy, took his M.D. at Edinburgh, and practised in that city. Ten years later he left to



G. Douglas Bolton

#### TULIP FIELDS NEAR SPALDING, LINCOLNSHIRE

(1897-8) it was present at the battles of Athara and Kharatoun. It fought at Paardeberg in the S. African war, 1899-1902. During the First World War it raised 19 battalions, which served in France, Flanders, Gallipoli, and Egypt. During the Second World War the L. R. fought on the W. front, in the battle of Normandy, and in the advance to the Rhine. They also fought as part of the Eighth Army in the invasion of Italy and yet other units were part of the Chindits in Burma. The 4th Lincolns were part of the 146th Brigade of the 49th Div., which fought in Normandy in 1944. Previous to fighting in France this div. was in Norway. In France the Lincolns (together with the Durham Light Infantry and the Duke of Wellington's Regiment) particularly distinguished themselves in the bocage country in the battle for Juvigny and Rauray. Later, also, the

become physician of Haslar naval hospital, where he worked for 25 years. During his service at sea, L. saw many tropical diseases and became interested in naval hygiene. He discovered the true nature of scurvy and, in his classical *Treatise of the Scurvy*, 1753, urged the issue of lemon juice in the navy as a preventive; it was owing to him that scurvy was eventually eradicated from the navy. The *Treatise* was reprinted in 1953. L. was the founder of naval hygiene in England; his *Essay on the Most Effectual Means of Preserving the Health of Seamen in the Royal Navy*, 1757, dealt with the appalling conditions in which sailors lived afloat, and advocated measures to improve ships' ventilation and prevent the spread of disease aboard. He also wrote *Essay on Diseases Incidental to Europeans in Hot Climates*, 1768. See life by L. H. Roddis, 1951.

**Lind, Jenny** (1820-87), Swedish singer, b. Stockholm. At the Royal Theatre in Stockholm she made her debut in 1838 as Agathe in Weber's *Freischütz*. She was at once successful, but after 2 years' work decided to continue her studies under Manuel Garcia. She sang in the prin. cities on the Continent, but it was not until 1847 that 'the Swedish nightingale', as she was called, appeared before a London audience. She aroused tremendous enthusiasm and became a popular heroine. In 1852 she married Otto Goldschmidt of Hamburg. She had before this (in 1849) retired from the operatic stage, but she continued to sing at concerts until 1883. In 1859 she had become a naturalised Brit. subject. See lives by H. S. Scott-Holland and W. S. Hockstro, 1891; her daughter, Mrs R. Maude, 1926; H. Headland, 1940.

**Lindau, Paul** (1839-1919), Ger. writer, b. Magdeburg. At first editor of various journals, he later became director of sev. of the Berlin theatres. L.'s works include biographies, essays, criticisms, stories, sketches, and dramatic adaptations. Among his better known plays are *Maria und Magdalena*, 1872, *Tante Therese*, 1876, *Die Erste*, 1895, and *Der Abend*, 1896. His other works include *Litterarische Rücksichtslosigkeit*, 1872, *Dramaturgische Blätter*, 1875 (essays on Molière and Alfred de Musset), also *Herr und Frau Beyer*, 1882, and *Spitzel*, 1888 (novels). See E. Hadlich, *Paul Lindau als dramatischer Dichter*, 1876; life by V. Klemperer, 1909; and his own *Nur Erinnerungen*, 1917.

**Lindau**, Ger. tn in the Land of Baden-Württemberg (q.v.), built on a small is. in the E. part of Lake Constance (q.v.); it is connected by road and rail with the NE. shore of the lake. Its abbey was founded in 810, and in the Middle Ages L. became an eccles. principality and was an important merchant tn, trading with Italy. The abbey was secularised in 1804. During the Second World War the tn was taken by the Fr. First Army in May 1945. There are numerous anct buildings, including the abbey church (9th-18th cents.), other medieval churches, a 15th-cent. tn hall, old towers, and fine old houses. The tn is a tourist resort and a port of call for lake traffic. Pop. 21,500.

**Lindbergh, Charles A.** (1902- ), Amer. airman, b. Little Falls, Minnesota. In 1925 he became an officer in the Missouri National Guard, and began to earn his living as a pilot in the gov. air mail service between St Louis and Chicago. Learning that Raymond B. Orteig had offered a prize of \$25,000 for the person who first made a non-stop air flight between New York and Paris, he appealed to some St Louis business men who agreed to finance him. They had built for him the 220 h.p. Ryan monoplane which was named *The Spirit of St Louis*. He left in this plane from San Diego, California, to New York, via St Louis, and arrived at his destination on 12 May, having made a record overland continental flight. His time of departure was 7.52 on the morning of 20

May 1927, and he landed at Le Bourget field, Paris, on the night of 21 May, or 33 hrs after starting. He was promoted to the rank of colonel in the Amer. Army and received many honours. Soon afterwards he met and married Anne Morrow, daughter of the Amer. ambas. to Mexico. In 1933 L. and his wife flew the S. Atlantic from the Gambia to Port Natal (Brazil), a distance of 1900 m., in 16 hrs, thereby completing a survey flight of both the N. Atlantic air route from America to Europe and of the S. Atlantic route. In 1932 his infant son was kidnapped in one of the most sensational crimes in America. The child was found dead and the kidnapper caught and executed. L.'s popularity, however, suffered from his isolationism in the period preceding America's entry into the Second World War, and his public utterances on President Roosevelt's policy suggested that he was not only against Amer. intervention but was bitterly hostile to Britain.

**Lindemann Electrometer**, see ELECTRO-METER.

**Linden**, a SW. suburb of Hanover (q.v.), Germany. It has iron, textile, chemical, and rubber industries.

**Linden-trees**, see LIME.

**Lindesnes**, cape of the extreme S. of Norway, near the entrance to the Skagerrak (Skagerack).

**Lindgren, Waldemar** (1860-1939), Amer. geologist and mineralogist, b. Kalmar in Sweden. He was prof. at the Massachusetts Institute of Technology from 1912 to 1933 and had a considerable influence on the newer developments in the study of mining geology. He pub. *Mineral Deposits* (4th ed.), 1933, and *Ore Deposits of the Western States*, 1935 (with bibliography).

**Lindi**, dist. H.Q. and port of Tanagerika, 60 m. N. of the Portuguese E. African boundary. There is a good harbour, but also a sandbar. L. is important as the main distributing centre of the S. Prov., dealing in or exporting grain, ground-nuts, rice, cashew-nuts, cotton, tobacco, beeswax, copra, and mangrove bark. Pop. (dist., 1952) Europeans 472; Asiatics 3694; Africans 227,378.

**Lindisfarne Gospels**, or **St Cuthbert's Evangelistarium**, most celebrated production of the Anglo-Iberian monastery of Lindisfarne, founded by St Aidan and the Irish monks of Iona or Icolmkill, in 634. St Cuthbert (q.v.) d. in 687 and as a monument to his memory his successor, Eadfrith, caused to be written in Latin this beautiful vol., which is known also as the Durham Book of St Cuthbert's Gospels. It formerly belonged to the dean and chapter of Durham, but is now in the Brit. Museum. The MS., surpassed in grandeur only by the Book of Kells (q.v.) in the same style, was greatly enriched by Æthelwald (Æthelwold), Bishop of Lindisfarne, who succeeded Eadfrith in 721 and caused St Cuthbert's book to be richly illuminated by the hermit Biffrith, who prefixed an elaborate painting of an evangelist to each of the 4 Gospels and also

illuminated the capital letters at the commencement of each book. Bishop Æthelwald had the whole encased in a binding of gold set with precious stones; and in 950 a priest named Aldred (Ealdred) rendered the book still more valuable by interlining it with a Saxon version of the original MS., which is the Lat. text of St Jerome. The peculiar importance of this vol. in the hist. of illumination (q.v.) consists in its clearly establishing, by its coincidence with earlier examples, the class of calligraphy practised by that primitive church and people to whom Gregory the Great sent St Augustine at the end of the 6th cent. The L. G. were ed., with a learned introduction, by Bouterweck in 1857 and by Stevenson and Waring for the Surtees Society in 1854-65.

Lindley, John (1799-1865), botanist, b. Catton, near Norwich. In 1819 he pub. *Observations on the Structure of Fruits* (a trans. from the Fr.), followed the next year by an original work, *Monographia Rosarum*. In 1829 he became prof. of botany at Univ. College, London, lecturer to the Apothecaries' Co., and secretary to the Royal Horticult. Society. Amongst his prin. pubs. are *A Synopsis of the British Flora*, 1829, *Flora Medica*, 1838, *The Vegetable Kingdom*, 1848, and *Theory and Practice of Horticulture*, 1855. In conjunction with Sir W. J. Hutton he also wrote *The Fossil Flora of Great Britain*, 1831.

Lindley, Nathaniel Lindley, Baron (1828-1921), jurist, b. Acton Green, Middx. He was called to the Bar in 1850, beginning practice in the court of chancery. In 1872 he became queen's counsellor and in 1875 a justice of common pleas. In 1881 he was raised to the court of appeal and made a privy councillor. He succeeded Lord Esher as master of the rolls in 1897, and 3 years later was made a life-peer, and thence until 1905 he was a lord of appeal in ordinary. His pubs. are *An Introduction to the Study of Jurisprudence*, 1855, and *Treatise on the Law of Partnership, including its Application to Joint Stock and other Companies*, 1893.

Lindley, William (1808-1900), civil engineer, b. London. In 1838, after travelling in various parts of Europe engaged in railway work, he was appointed chief engineer to the Hamburg-Bergedorf railway. He began by constructing a complete sewerage system, and between 1844 and 1848 he designed the Hamburg water works. He also designed the rebuilding of Hamburg after the fire of 1842, erected the gas works, and executed the trigonometrical survey of the city (1848-1860).

Lindo, Mark Prager (1819-79), Dutch prose writer, of Eng. parentage, b. London. He went to Holland at the age of 19 as a teacher of English. He wrote sketches for the *Amherstische Courant*, afterwards pub. in book form under the pen-name of De Oude Herr Smits ('Old Mr Smits'). In 1856 he founded the *Nederlandsche Spectator*, in which much of his best work appeared. L.'s chief serious original Dutch writing was *De Opkomst en Ont-*

*wikkeling van het Engelsche Volk* (The Rise and Development of the British People) (2 vols.), 1868-74.

Lindsay, Alexander Dunlop Lindsay, 1st Baron Lindsay of Birker (1879-1952), philosopher, b. Glasgow; educ. at Glasgow Academy and Univ. and at Univ. College, Oxford. Shaw fellow, Edinburgh Univ. (1904-9); lecturer in philosophy, Victoria Univ., Manchester (1904-6); fellow of Balliol and classical tutor (1906); Jowett lecturer in philosophy there (1911); prof. of moral philosophy, Glasgow Univ. (1922-4); vice-chancellor, Oxford Univ. (1935-8); Master of Balliol College from 1924 to 1949, when he retired to take up the position of head of the new Univ. College of N. Staffs. His works include *The Philosophy of Bergson*, 1911, *Karl Marx's 'Kapital'*, 1925, *The Nature of Religious Truth*, 1927, *Christianity and Economics*, 1933, *Kant*, 1934, *The Churches and Democracy*, 1934, *The Moral Teaching of Jesus*, 1937, *The Two Moralities*, 1940, *The Modern Democratic State*, 1943, and a trans. of Plato's *Republic*, 1907.

Lindsay, Lady Anne, see BARNARD.  
Lindsay, or Lyndsay, Sir David (1490-1555), poet and Lyon King-of-Arms, b. probably Garmylton, near Haddington. He was attached to the Scottish court in 1508, and later became 'usher' to James V of Scotland, holding this position till 1522. From his writings it is evident that although L. took part in the court life his sympathies were with the people, and he was not afraid of rebuking the vices of the young king, with whom notwithstanding he was a favourite. *The Testament and Complaynt of our Sovereane Lordis Papynge* (Parrot) was written by L. as a satire on the court, prelates, and nobles, and the *Answer to the Kingis Flyting* as a rebuke of the king's licentiousness. His earliest poem is *The Dreame* (c. 1528), an allegory in the style of Chaucer, written in the 7-line stanza. L.'s famous morality play, *Ane Satyre of the thrie Estatis*, denouncing the clergy, appeared in 1540. His longest poem is *The Monarchie*, giving an account of the rise and fall of Syria, Persia, Greece, and Rome. Others include *The Complaynt of Rapsche*, the *Kingis auld Hounde*, to *Rantie*, the *Kingis best belovit Dog*, and his *companeonis*; *Killeis Confessioun* (an attack on the Church); and *Ane Descriptioun of Pedder Coffeis* (i.e. pedlars), a study in low life. See study by W. Munro, 1938.

Lindsay, David (1856-1922), explorer, b. Goolwa, S. Australia, of Scottish parents. He began his career in the Survey Dept. of the Australian Gov. He explored and surveyed many parts of the country, and in 1888 achieved the feat of crossing Australia on horseback from N. to S. His explorations in the MacDonnell Mts in central Australia in 1889-90 led directly to the opening up of the famous gold-field of W. Australia. In later life he was concerned largely in the development of mining.

Lindsay, Nicholas Vachel (1879-1931), Amer. poet, b. Springfield, Illinois. He studied art in Chicago, and for a time was

a lecturer for the Y.M.C.A. and the Anti-Saloon League. Finding in himself a genuine aptitude for smooth, easy-flowing verse, he imitated the anct bards and minstrels by tramping the highways and securing from unsophisticated everyday folk on the farms a night's board and lodging, in return for which he recited to them some of his own compositions. He may be said to have injected the spirit of jazz into his rhymes, which appear better when recited than when read. Among his books of verse are *General William Booth enters into Heaven*, 1913, *The Congo and Other Poems*, 1914, *The Chinese Nightingale*, 1917, *The Golden Book of Springfield* (prose), 1920, *The Golden Whales of California*, 1920, and *Every Soul is a Circus*, 1929. *A Handy Guide for Beggars*, 1916, was based on his own experiences on the road. See life by E. L. Masters, 1925.

**Lindsay, Norman Alfred William** (1879- ), Australian artist, b. Creswick, Victoria. L. is principally known for his illustrations of Petronius, Rabelais, Villon, and of Aristophanes' *Lysistrata*, trans. by his eldest son Jack who is also a novelist. His etchings were reproduced in a collected ed. in 1927 and with them was a chronology of his work. His work is free and vigorous. Other pub. are *Creative Effort*, 1924, *Madam Life's Lovers*, 1929, and *Age of Consent*, 1938. His second son, Philip (d. 1958), gained recognition as a writer of historical novels.

**Lindsay, Robert, of Pitcottie** (c. 1530-1590), historian, b. near Pitcottie, Fife. His *History and Chronicles of Scotland* (first pub. 1728) continued the work of Boece (q.v.) from 1437 to 1565 and was written in the vernacular. It is unreliable in many respects but is especially valuable for its detail regarding the early part of the period it covers.

**Lindsay, co. tn of Victoria co., Ontario, Canada**, 70 m. NE. of Toronto. It manufs. carriages, leather, agric. implements, etc., and has a tannery and saw-mills, also knitting and woollen mills. Pop. 10,107.

**Lindsays, Earls of Crawford and Balcarres, see CRAWFORD and BALCARRES, EARLS OF.**

**Linsday, Benjamin** (1869-1943), Amer. jurist, b. Jackson, Tennessee. Educ. at Notre Dame Univ., Indiana, and the Baptist Univ. of his native tn, he moved to Colorado, and was admitted to the Bar in Denver in 1894. Becoming interested in the fate of juvenile offenders, he secured the passage of the Colorado juvenile court law in 1899 and was named judge of the court in Dec., being re-elected for 10 successive terms. He met with opposition, but succeeded in his aim of enforcing the rights of children. In 1934 he became a judge of the Superior Court of California. His work *Problems of Children* appeared in 1903. Other writings include *The Revolt of Modern Youth*, 1925, and *The Compassionate Marriage*, 1927, both in collaboration with Wainwright Evans. His autobiography, *The Dangerous Life*, was pub. in 1931.

**Linsday, Earl of, see BERTIE, ROBERT.**

**Linsday, Parts of**, dist. of Lincs, the largest of the 3 administrative divs. (or 'parts') of the co., occupying the N. half. The SE. dist. of Lincs is called 'Parts of Holland' and the SW. 'Parts of Kesteven.' Area 961,434 ac.; pop. 309,592.

**Line Engraving, see ENGRAVING and PROCESS WORK.**

**Line Islands**, line of coral atolls, running SSE. from the Hawaiian group to the N. part of Fr. Oceania (q.v.). They are uninhabited and, apart from deposits of guano and plantations of coco-nuts, of no great interest. However, in 1930, when it was seen that the is. might have some value as aviation stations, 8 of them were acquired by Great Britain and 3 by the U.S.A. Most of them were garrisoned by Amer. forces during the Second World War. Three of the Brit. is., Washington, Fanning, and Christmas, form part of the Gilbert and Ellice (q.v.) group.

**Line of Communications**, route by which, in war-time, supplies and ammunition are conveyed from the base of operations to the main body of the army or the zone of operations. The direction in which the army is preparing to move forward is termed the *line of operations*; thus the latter is followed up closely by the L. of C. which grows in length, and in importance from a strategical point of view, as the march of the army is prolonged. In the olden times armies were absolutely dependent for their supplies upon the resources of the country in which they were campaigning. When one part of the country was no longer able to support it, the army moved on, thus leaving in its train, in the majority of cases, a blighted, devastated countryside. The introduction of L.s of C. brought about a revolution in the art of strategy. Strategical movements and operations have always, from the very beginnings of war, depended ultimately upon the question of supplies. 'An army travels on its belly,' as Frederick the Great is reported to have said, and Napoleon's dictum that 'the secret of war lies in the communications' embodies the same truth. Thus the L. of C. became the all-important factor, for an army could be either forced out of a strong position or checked in its advance when its L. of C. was threatened or cut. If an army could land from the sea at a point near to a L. of C., especially if not well defended, it might force the enemy to renounce any projects against distant points, as the occupation of Plevna stopped the advance of the Russians through Bulgaria. In more recent times L.s of C. have consisted either of the roads of a country, the rivs., the railways, or of the open sea. Railways can supply the needs of an army very quickly, but have sev. attendant disadvantages. The beds of railways are easily wrecked; the army relying on them is too hampered in its sphere of action, and as the carrying power of every railway is known a surprise attack cannot be successfully carried out when properly opposed, as Moltke showed in 1870. The sea is the L. of C. par



*excellence* when it is available, as by its use secrecy and freedom of movement can be obtained and the enemy kept in a continual state of suspense. As has been seen, on the efficiency of its L. of C. depends the efficiency of an army, but if a general is able to cut loose from his L. of C. and change it at will, he gains thereby an enormous advantage, as both Grant and Sherman showed in the Amer. Civil War, and Lord Roberts in his march on Pretoria in the S. African War. In the First World War, with the stabilising of the W. and E. fronts, on which opposed armies of vast numbers occupied many lines of trenches, behind which trench systems whole countries were organised for war, surprise attacks on L.s of C. were out of the question, though the fundamental principles above outlined remained unchanged. Germany's advance into Belgium and N. France was rendered less precarious by reason of the pre-war construction of strategic railways in those parts of Germany whence, in the event of war, the invading armies might well receive reinforcements and supplies. Secrecy and freedom of movement on the seas were by no means easy of attainment by reason of the use of seaplanes and wireless communication. A secret and surprise landing by the Allies at Suvla Bay would have cut off the L.s of C. of the Turkish armies in Gallipoli, but, as events proved, the venture was impossible. The great developments in modern aerial warfare have to some extent modified the above outlined principles. The Ger. conquest of Crete in the Second World War was accomplished entirely from the air, their L. of C. being, in effect, the aerial routes to the conquered airfields in Greece. Again, beleaguered armies and cities were sustained for indefinite periods by air-borne supplies, as in the case of the Ger. army in Staraya Russa. The Brit. garrison in their epic resistance in Tobruk, Libya, were kept supplied both from the sea and the air, but the sea communication was always uncertain and hazardous. Operations of the allied forces in Burma became increasingly dependent upon air supply, both in defence and attack.

**Line Spectrum**, see BETA PARTICLES; SPECTRUM; X-RAYS.

**Línea, La**, Sp. tn in the prov. of Cádiz, just N. of the 'neutral' strip at the Gibraltar (q.v.) frontier. Cork and food-stuffs are manuf. Pop. 80,000.

**Linear Earthworks**, see DYKES.

**Linen**. L. yarns and fabrics are spun and woven from the fibres of flax (*Linum usitatissimum*). The flax plant belongs to the order Linaceae, and grows from 2 to 3 ft high. It is cultivated widely in Europe and Asia. The manuf. of L. was one of the most widely spread and extensive industries of European countries from quite early times. Egypt, too, was long celebrated for its L.s, many L. mummy cloths of fine texture and great age having been found there. The cultivation of flax was extensive in Italy shortly before the Christian era, and it was probably introduced into Britain for

textile purposes by the Romans. In recent times it has ceased to be a domestic industry, and has become an important textile manuf. in certain dists. The inventions of Arkwright, Hargreaves, and Crompton in the latter half of the 18th cent. were a blow to the L. trade as it then existed. In 1781 the foundation of machine spinning of flax was laid by John Kendrew and Thomas Porthouse of Darlington, who obtained a patent for the first mill for spinning yarn by machinery which was built at Darlington. Their invention ultimately developed into the present-day system of mechanical spinning. The weaving of L. yarn by power loom was of slower growth than that of cotton, the first really successful factory for the former not being erected till 1812.

The modern L. industry is classified broadly into 4 branches, viz.: spinning, weaving, bleaching-dyeing-finish, and making-up.

(a) *Spinning*. After the fibre arrives at the spinning mill it has to undergo the processes of hackling and preparing before it is ready for the actual process of spinning. In hackling the stricks of flax are pieced out by hand to a standard size, and the root ends and top ends are drawn sev. times through strong steel pins held in a rectangular block of wood to disentangle the ends of the fibre strands. The 'roughed' pieces are then transferred to a hackling machine in which they are clamped at the centre while one end is combed repeatedly by a series of pinned combs graduated from coarse to fine; the position of the clamp is then transferred automatically to the hackled end and the operation is repeated on the central part and on the second end. The hackled line emerges as pieces in which the subdivided fibre strands are straight and parallel, and are combed clean from end to end. The short and tangled fibres that are combed out in this process are collected, and after being cleaned and made into a sliver on a carding machine, are used for the preparing and spinning of flax tow yarns.

The hackled line then goes forward to the preparing processes. Separate pieces from the hackling machine are converted into a continuous ribbon or sliver on a spread-board; the pieces are laid to overlap each other endways on slowly moving belts by which the fibre is fed into pinned gills from which it is drafted or attenuated and combined into one continuous sliver. This sliver is then drawn out on a series of drawing frames and on a roving frame where a slight twist is imparted and the resulting rove is wound on a bobbin.

The spinning operation itself consists of a drafting or attenuation of the fibrous ribbon to the final size of the yarn and the insertion of more twist. Coarse yarns are spun by drafting roves or slivers in the dry condition, but in the wet spinning operation used for fine yarns, the rove is passed through a trough of hot water before it is drafted between 2 pairs of fluted rollers. Finally, the yarn is reeled off the spinning bobbins into hanks of

standard size or wound on cross-wound cheeses or cones.

The size or number of wet spun yarns is denoted by the number of 300-yd 'cuts' to the pound, and the size of dry spun yarns by the weight in pounds of 14,400 yds.

(b) *Weaving.* Weaving of L. yarn into cloth is accomplished in 6 main operations:

(1) Winding the warp yarns on a number of beams.

(2) Winding the warp yarns from the several beams on to the loom beam; during this operation size materials, lubricants, and softeners are applied to the yarn to enable it to withstand the frictional forces in weaving.

(3) Drawing in the warp yarns (which run the length of the cloth) through heddles and reeds which space the yarns according to the fineness of cloth required.

(4) Putting the loom beam, heddles, and reed into the loom and adjusting the parts ready for weaving.

(5) Winding the weft yarn on pirns for placing in the shuttle.

(6) Weaving the cloth by causing the shuttle to move from side to side of the loom, the weft yarn being interwoven with the warp yarn in the order required by the weave.

The woven cloth is removed from the loom in convenient lengths termed pieces or webs.

(c) *Bleaching-Dyeing-Finishing.* For most purposes, either the yarn or the fabric woven from it require to be scoured and bleached. This treatment may be followed in both cases by dyeing. The yarn may be scoured, bleached, and dyed in the form of hanks or of wound packages. The cloth (in some cases after first having the protruding surface fibres removed by singeing), may be treated in rope form or in open width. Long continuous batches are made by sewing many webs end to end.

Scouring consists in boiling the yarn or cloth in alkaline liquor containing slaked lime or caustic soda or soda ash, and this action prepares the way for the subsequent bleaching by removing much of the non-cellulosic plant tissue naturally associated with the flax fibre.

The yarn or cloth is then bleached in a solution of an oxidising agent, such as hypochlorite, chlorite, or hydrogen peroxide, often in different sequences. It is then washed and dried. Before drying, small amounts of softening or stiffening agents may be added to the bleached or dyed cloth according to the type of finish and handle desired. Cloth is finally brought to width and dried on a stenter frame, and a flat or a polished finish may then be conferred on it mechanically by passing it between the bowls of a calender under heavy pressure.

(d) *Making-up.* This consists of cutting up the finished cloth, and hemming or stitching the various articles, which may also be adorned by embroidery.

Uses of linen include dress wear, upholstery and curtains, towels, table-cloths, sheets and pillow-cases, handkerchiefs,

sewing threads, cords and twines, canvas and covers. In 1953 the making-up branch of the L. trade in N. Ireland employed some 12,000 people. Belfast is the chief tn in N. Ireland engaged in the manuf. of linen, and in Scotland the chief centre is Dundee. The value of L.s exported from the U.K. in 1955 was £16,646,000. In 1953 the Ulster L. industry provided employment for approximately 48,500 persons. See also FLAX. See T. Woodhouse and T. Milne, *The Finishing of Jute and Linen Fabrics*, 1928; T. Woodhouse and P. Kilgour, *Spinning, Weaving, and Finishing of Flax and Jute*, 1929; A. V. Pringle, *The Theory of Flax Spinning*, 1949.

Linen-fold, see FURNITURE.

Ling, see CALUNA VULGARIS.

Ling (*Molva*), wide-ranging fish of the *Gadidae*, cod family. It is from 3 to 4 ft long, and is orange-grey or bluish on the back and sides, and silvery on the belly. The caudal fin is rounded at the extremity. When fresh it is not much valued for food, but cured and dried it is consumed in great quantities in S. Europe. The roes sometimes attain a great weight, and the female is one of the most prolific fish known. The liver yields an oil which has been used as a luminant, and is sometimes substituted for cod-liver oil as medicine.

Linga Puja, form of phallic worship practised among the Hindus. The Linga, or emblem of the male generative organ, is the symbol of Siva, under which form that god is worshipped by the Lingayats, an independent Saiva sect. The female counterpart is called the *Yoni*, and the two are grouped together as the *Sakti Puja*.

Lingah, or Bandar Lingah, see LENGHE, or BANDAR LENGHE.

Lingard, John (1771-1851), historian, b. Winchester, studied at the Eng. Rom. Catholic College at Douai, and was from 1795 until 1811 vice-president of Crook-hall College, near Durham. In 1806 he pub. *The Antiquities of the Anglo-Saxon Church*, and 5 years later began his famous *History of England*, the first 2 vols. of which appeared in 1819 and the last in 1830. Its accuracy and detachment have preserved its importance as a standard hist., although it lacks style.

Lingayen, large gulf on the W. coast of Luzon, Philippine Is. The cap. of Pangasinán, a prov. of Luzon, is called L., and is situated on the S. shore of the gulf. The climate is good and rice is extensively cultivated. The coast of L. Bay, which has the naval base of Cavite, was the scene of the Jap. invasion of Luzon on 22 Dec. 1941. Three years later, in Jan. 1945, the U.S. Sixth Army also made landings here, following a naval bombardment of the coast, and estab. beachheads from which the liberation of Luzon was successfully conducted. Pop. 36,806.

Lingen, Ger. tn in the *Land* of Lower Saxony, on the Dortmund-Ems canal, 104 m. W. of Hanover (q.v.). It has textile, engineering, and oil industries. Pop. 16,000.

Lingfield, tn and par. of Surrey, England, in Godstone (q.v.) rural dist. There

is a 15th-cent. church and a racecourse. Pop. 5214.

**Linguaglossa**, tn in Sicily (q.v.), on the N.E. slope of Mt Etna (q.v.), 23 m. NNE. of Catania (q.v.). It is well known for its wood-working. Pop. 14,000.

**Linguet**, Simon Nicolas Henri (1736-1794), Fr. advocate and writer, b. Rheims. One of the most celebrated advocates of his time, he quarrelled with other members of the Bar and was dismissed. He then took to journalism, founding the *Journal de politique et de littérature*, but as a result of a clash with the Fr. Academy he had to leave the country, returning some years later as an Austrian councillor of state. He was eventually guillotined in Paris. He wrote *Histoire du siècle d'Alexandre le Grand*, 1762, *Histoire des révolutions de l'empire romain*, 1766-8, *Histoire impartiale des Jésuites*, 1768, *Théorie des lois civiles* (an attack on Montesquieu's *Esprit des lois*), 1767, and *Mémoires sur la Bastille*, 1789. See J. Cruppi, *Un avocat journaliste au 18<sup>e</sup> siècle*, 1895.

**Linguistic Families**. It is not to be assumed that every language belonging to one of the 3 main groups of languages, classified according to their structure (see LANGUAGES, CLASSIFICATION OF), is related to every other of the same group. Until about 150 years ago all languages were referred to as Hebrew in origin, and this was taken for granted since Hebrew was the language of the Bible. In 1767 the Fr. Jesuit Coeurdoux pointed out certain resemblances between Sanskrit and the European languages. Nearly 20 years later Sir Wm Jones described Sanskrit as being more exquisitely refined than Greek and Latin, yet bearing to both of them a stronger affinity, both in the roots of verbs and in the forms of grammar, than could possibly have been produced by accident. In 1816 Franz Bopp, later a prof. in the univ. of Berlin, pub. a comparative grammar of the Sanskrit, Gk., Lat., Persian, and Germanic languages, and thus laid the foundation for the comparative method of linguistics. On the other hand, in 1822 the Ger. encyclopaedic scholar Wilhelm von Humboldt rightly stated that languages are so different in form that it is impossible to classify them both *accurately* and *comprehensively*, or to divide the languages of the world into groups or families in such a way as to account satisfactorily for absolutely *all* of them. Indeed the later and more detailed study of linguistic science has proven many conclusions of earlier scholars to be groundless, and their classifications often inaccurate. Still, nowadays the great majority of forms of speech, including all the important languages, can be classified.

The 19th cent. witnessed the formation and development of a new branch of study known as comparative philology (see PHILOLOGY). Already in the late 18th cent. it was discovered (see above) that certain forms of speech such as Sanskrit, anc. Greek and Latin, Persian, and Germanic showed various linguistic

features which were more likely to have been inherited from a common ancestor of these languages than to have originated independently. Applying the so-called comparative method eminent philologists have attempted to reconstruct the original languages of modern linguistic branches, such as Germanic, Slavonic, Celtic, and so on (these were called proto-Germanic, proto-Slavonic, proto-Celtic, etc.), as well as of larger L. F., or sub-families, such as Indo-European, Semitic, or Finno-Ugrian (called proto-Indo-European, proto-Semitic, proto-Finno-Ugrian). At the same time it was possible to establish the close relationship between the members belonging to the same linguistic family, the closer relationship between the members of a linguistic sub-family, the still closer relationship between the members of a linguistic branch, sub-branch, or group. It must, however, be pointed out that there are still many open questions, and problems which to-day seem to be solved and to-morrow may be considered again open. For instance, until recently the Semitic and the Hamitic languages were considered distinct L. F.; nowadays most authorities regard all the Semitic and Hamitic languages as belonging to the same linguistic family.

With these and other reservations it may be said that the great majority of the 2500-3000 languages of the world may be classified in the following 15 to 30 L. F.: the number depends on the way in which the native languages are classified; whether the various groups be considered as L. F. or sub-families or only branches or sub-branches. Each of the L. F. may be divided into various sub-families or branches, most of which may be again subdivided into sub-branches or further languages or groups of languages. It must be emphasised, however, that the classification of languages is not the same thing as classification of races or nationalities. Languages have spread by military and political conquest, or cultural and religious influence, as well as by wholesale migrations, to peoples biologically quite unrelated to the original speakers. The most conspicuous example is the U.S.A., where 150,000,000 people of Eng., Irish, Welsh, Scottish, Ger., It., Polish, Amerindian, African, Jewish, and other descent all speak a language, which, once a Ger. dialect influenced by Lat., Norman Fr., and other forms of speech, is to-day the richest language in the world. In various parts of the world, and particularly in N. America (where, for instance, according to Voegelin, only 'over half the aboriginal languages are still spoken'), English has driven out other languages temporarily estab. In Lat. America the aboriginal languages are slowly disappearing before Spanish and Portuguese. In Siberia Russian has replaced many aboriginal languages.

**Main linguistic families**. Indo-European languages (q.v.); Semitic-Hamitic (q.v.); and Ural-Altaic (q.v.).

**The Caucasian linguistic family**. The region of the Caucasus Mts to-day presents

a bewildering complexity of diversified tongues spoken by fairly small groups, neighbours to one another, many of which are mutually unintelligible. Of these only one, Georgian or K'art'uli'ona, achieved literary expression at a comparatively early date (4th or 5th cent. AD), while others have remained practically unknown outside their own ter. On the other hand, various important ancient languages, long extinct (e.g. Elamite and Hattic, and perhaps also Lycian and Carian: see ALPHABET and CUNEIFORM WRITING), have been considered as having Caucasian affinities.

*European remnants of linguistic families.* Many more L. F. existed of which very little is known. For many thousands of years languages have been developing, changing, and disappearing throughout Europe as throughout all the other continents, without leaving any trace, because the people who spoke them disappeared and there was no method of recording them for future generations. Other peoples left written documents which as yet cannot be read or cannot be understood. Interesting is the instance of the ancient Cretans or Minoans, who left many thousands of documents written in various scripts, but none of the attempted decipherments has yielded results. Scholars, however, are generally agreed that the language was not Indo-European. (We are not referring to Minoan Linear B script; the documents written in this script apparently are couched in the early Gk language: see M. Ventris and J. Chadwick, *Documents in Mycenaean Greek*, 1956.) Even more interesting from the linguistic point of view is the case of the Etruscans (q.v.), who were the leading power in Italy in the first half of the first millennium BC. Much of their civilisation passed, through the Romans, into the fabric of European civilisation. The simple reading of the numerous Etruscan inscriptions does not present great difficulties, but their language has not yet been deciphered, and its relationship with other L. F. is still uncertain. Another linguistic problem is that of the Basques. Their language is as alien to Indo-European as can be imagined. It has been suggested that the Basques are the remnants of the ancient Iberians who were supposed to have been connected with the ancient Caucasian Iberians. Some scholars consider Basque as the sole surviving fragment of a common speech spoken by Neolithic peoples scattered over Europe long before the conquest or immigration of the Indo-Europeans. Others connect the Basques with the ancient Ligurians, who in Neolithic times apparently inhabited the whole N. part of the W. Mediterranean, and consider the ancient Iberian language as the offshoot of an early Libyan tongue. However, the problem remains unsolved.

*The Tibeto-Chinese linguistic family* has a great number of languages (partly agglutinating and partly isolating: see LANGUAGES, CLASSIFICATION OF) and dialects, and is spoken over a very wide

area, from Peking to Baluchistan, and from Central Asia to S. Burma. It falls into 2 sub-families, Siamese-Chinese and Tibeto-Burmese, the former comprising Chinese, Annamite, Karen, Siamese, Thai Lao, Thai Lu, Thai Ya, Thai Yuan, Thai Mao, Lü, Hkūn, Ahom, Khamti, Pal-i; Shukia, and other Shan dialects, the latter comprising the numerous Bhotia languages (including Tibetan) spoken in Tibet, Bhutan, Sikkim, Nepal, Ladakh, and Baluchistan; Burmese; Pyu (extinct); the Lo-lo and Mo-so group of languages; the Mon group (Miao or Miao-tzu, with many dialects in SW. China; Yao or Yao-ming, with various dialects in the Chinese provs. of Kwantung and Kwangsi, and in upper Burma); Li-su (Yunnan); the extinct Tangut or Si-Hia (powerful kingdom, AD 982-1227, between China and Tibet); and other languages and dialects.

*Malay-Polynesian* is another of the most widespread L. F. in the world, extending from Madagascar (Malagasy) through the Malay Peninsula, Indonesia, and the Philippines, to Formosa, New Zealand, Hawaii, and Easter Is. Hundreds of languages and dialects belong to this family, many of them having ancient literatures (especially Javanese) and indigenous scripts (Javanese, Batak, Redjang, Lampong, Macassarese, Buginese, Filipino: see ALPHABET). Some of these languages are extinct (e.g. Cham in Indo-China). To-day the entire Malay-Polynesian language problem is simplified by the existence of a kind of lingua franca, 'basic' Malay, known as 'pidgin' or 'bazaar', which is understood in all except the interior districts, of the larger is.

*Dravidian languages* (S. India). Bishop Caldwell, who devised the term Dravidian from *Dramida* or *Dravida*, the Sanskrit form of Tamil, distinguished 12 Dravidian languages or dialects, 6 cultivated and 6 uncultivated. Many other dialects and sub-dialects exist. However, 4 are the main languages: Tamil (18,000,000 speakers), which possesses the earliest Dravidian literature; Telugu (about 22,000,000), the Dravidian speech most widely spoken; Malayalam (about 5,000,000), closely akin to Tamil, but more influenced by Sanskrit; and Kanarese (about 8,000,000), more akin to Telugu than to Tamil.

*Austro-Asiatic linguistic family.* The ancient Khmer language (Khmer is the indigenous name for Cambodia, which is the Europeanised form of the Sanskrit term Kambuja) and the Mon language (the Mon or Talangs, also known as Peguans, were the earliest civilised people of Burma) constitute the Mon-Khmer branch of a family of languages which in the remote past occupied a very extensive area. Kindred languages are still spoken in Assam (Khasi), on the Malay Peninsula (Senoi), and over the whole of Central India (Kolarians or Mundas).

*Other linguistic families of the Pacific.* The numerous languages and dialects of the Australian Aborigines, of the Papuans, of the Tasmanians (extinct in 1876), are

remnants of various L. F. having no apparent affiliation to others.

*Remnants of the Aboriginal or Palaeo-Siberian linguistic family.* The Yukagir, the Chukcha or Tusk, and the Koryak are Mongoloid tribes inhabiting the shores of the Arctic Ocean and Bering Sea in NE. Siberia. They speak Luoravetlan, Siberian Palaeoasiatic 'aboriginal' languages.

*Negro-African languages (q.v.).* Apart from the extremely primitive linguistic family of the Bushmen and the Hottentots, who actually are not Negro peoples, the numerous forms of speech (numbering perhaps 1000) of the Negro peoples of Africa are considered as belonging to the following main L. F.: Bantu, Sudanic or Sudanese (also known as Sudanese-Guinean), and Nilotic.

*Native languages of the American continents.* These languages and dialects, numbering over 1000, are termed American Indian, or Amerind, or else, even more improperly, Red Indian. Their classification is far from easy. Some families have been more or less carefully studied, but the variety is so great that even experts differ widely in their estimates of the numbers of groups, of their mutual cultural interpenetration, and the various results of migration and conquest in the distant or recent past. It must be pointed out that the study of relationship between various languages and groups of languages is extremely difficult when the hist. of the single languages cannot be studied, as is the case of nearly all the Amer. native languages. However, a broad linguistic div. can be made into the following geographical groups: (1) Canada and the U.S.A. (see NORTH AMERICAN NATIVE LANGUAGES): about 10 linguistic groups. (2) Mexico and Central America (see MEXICAN AND CENTRAL AMERICAN NATIVE LANGUAGES): various linguistic groups. (3) S. America (see SOUTH AMERICAN NATIVE LANGUAGES): about 10 L. F.

See F. Müller, *Grundriss der Sprachwissenschaft* (4 vols.), Vienna 1876-88; C. Brockelmann, *Grundriss der vergleichenden Grammatik der semitischen Sprachen*, 1908; F. N. Finck, *Die Sprachstämme des Erdkreises*, 1909; A. C. Haddon, *The Wanderings of Peoples*, 1911; F. Boas, *Handbook of American Indian Languages*, 1911-12; R. Caldwell, *A Comparative Grammar of the Dravidian Languages*, 1913; Sir H. H. Johnston, *A Comparative Study of the Bantu and Semi-Bantu Languages*, 1919; A. Meillet, *La Méthode comparative en linguistique historique*, 1925, and *Linguistique historique et linguistique générale*, tome ii, 1938; A. Meillet and M. Cohen, *Les langues du monde*, 1925; W. Schmidt, *Sprachfamilien und Sprachkreise der Erde*, 1926; V. Thomsen, *Geschichte der Sprachwissenschaft*, 1927; W. Graff, *Language and Languages*, 1932; L. Bloomfield, *Language*, 1933; U.S. Gov. Printing Office, *Foreign Languages*, 1935; J. Huxley and A. C. Haddon, *We Europeans*, 1935; J. R. Firth, *The Tongues of Men*, 1937; E. M. North, *The Book of a Thousand Tongues*,

1938; R. Benedict, *Race: Science and Politics*, 1940; B. Bloch and G. Trager, *Outline of Linguistic Analysis*, 1942; F. Bodmer, *Loom of Language*, 1943; J. O. Jespersen, *Language*, 1947; J. G. Weightman, *On Language and Writing*, 1947; M. Chapin, *How People Talk*, 1947; E. Partridge, *The World of Words*, 1948; K. L. Pike, *Tone Languages*, 1948; D. Diringer, *The Alphabet, a Key to the History of Mankind*, 1948; D. C. Pittman, *Practical Linguistics*, 1948; M. A. Pei, *The World's Chief Languages*, 1949; M. Cohen, *Le Langage*, 1950; *L'Écriture*, 1953.

*Linguistic Science, or Linguistics.* Is the science or body of knowledge which concerns the speech of human beings, i.e. language (q.v.). L. S. is concerned with the origin of speech (see LANGUAGE, ORIGIN OF); it notes variations in speech, laws governing these variations, and their transmissions to other people, as well as the alliances and the differences between the various languages. A branch, known as historical linguistics, relates how, as a result of the movements of pop. and the migration of peoples, and of various cultural influences, the linguistic families (q.v.) have formed, how they have been brought into contact, and how they have influenced one another. See also LANGUAGE; LANGUAGE, ORIGIN OF; LANGUAGES, CLASSIFICATION OF; LINGUISTIC FAMILIES; PHILOLOGY.

Link, see METROLOGY.

Linklater, Eric (1889- ), novelist and biographer, b. Dounby, Orkney Is. He was educ. at Aberdeen Grammar School and Aberdeen Univ. He served with the Black Watch in the First World War and was invalided out in 1918. After the war he studied medicine but gave this up to take his degree in Eng. literature (1925). He then went to India, where he remained 2 years as assistant editor of *Bombay Times*, and was lecturer in Eng. literature at Aberdeen, 1927-8. He pub. 2 novels in 1929: *White Man's Saga* and *Poet's Pub.* For 2 years until 1930 he was in the U.S.A. as commonwealth fellow. His impressions of America were witty, and sometimes unkindly, fictionalised in *Juan in America*, 1931, a book which helped to make his reputation as a humorous, zestful, and inventive writer. A number of books followed during the next 10 years, including 2 biographies: *Mary Queen of Scots*, 1933, and *Robert the Bruce*, 1934. *Juan in China* appeared in 1937, and *The Impregnable Women* in 1938. On the outbreak of war in 1939 L. took part in the defence preparations of the Orkney Is., and in 1941 went to the public relations dept. of the War Office, for which he wrote *The Defence of Calais*. After the war he became lord rector of Aberdeen Univ. (1945-8). He has written plays for the stage and for broadcasting, and an autobiography, *The Man on my Back*, 1941. His book for children, *The Wind in the Moon*, 1944, won the Carnegie prize. Among his latest books are a novel, *The House of Gair*, and a travel book, *A Year of Space*, both pub. in 1953.

**Linköping**, tn in the prov. of Östergötland in Sweden, 142 m. from Stockholm. It has a fine museum and a cathedral second only in importance to Uppsala (q.v.) Cathedral. It manufs. cloth and hosiery. Pop. 80,973.

**Linley, Thomas** (1733-95), composer, b. Badminton. He estab. himself at Bath and in 1774 went to London, where he remained director of Drury Lane Theatre for many years. He supplied the music to Sheridan's (q.v.) *Duenna*, as well as to other stage pieces. Sheridan married his daughter, Elizabeth (1754-92), a singer, and his other 2 daughters and 3 sons were musicians also. All but the last 2 sons died young.

**Linlithgow, John Adrian Louis Hope**, 1st Marquess of (1860-1908), son of the 8th Earl of Hopetoun, received, in 1902, the title of Marquess of L. as a mark of appreciation for his services as first governor of the commonwealth of Australia. He d. 6 years afterwards, when his eldest son succeeded him as second marquess. The earldom of L. was a title held by the Livingstones in the beginning of the 17th cent., some of whom also held the title of Earl of Callender. His son, **Victor Alexander John Hope**, 8th Earl of Hopetoun and 2nd Marquess L. (1887-1952), soldier and administrator, was chairman of the joint select committee on Indian constitutional reform, which prepared the L. report, 1933. He was viceroy and Governor-General of India, 1936-43.

**Linlithgow**, royal and parl. burgh, and cap. of W. Lothian, Scotland, 17½ m. W. of Edinburgh. L. Palace (now a ruin) was the bp. of Mary Queen of Scots, and is a quadrangular building, dating in its present form from the 15th-17th cents., with a tower at each corner. It overlooks Loch L. (1 m. in length). Pop. 4000.

**Linlithgowshire**, see WEST LOTHIAN.

**Linnaeus**, or von Linné, Carl (1707-78), Swedish botanist, b. Rasnult. He was intended for the Church, but his leanings towards botany led to his being given the charge of Prof. Rudbeck's botanical gardens and acting as deputy lecturer for Rudbeck in 1730. From the age of 24 he began to work at his famous classification of plants according to their reproductive organs, which he began to describe in his *Hortus Uplandicus*. In 1732 he undertook botanical explorations through Lapland and Dalecarlia, and in 1735 he went to Holland, where he met Gronovius and Boerhaave. While in Holland he completed his *Systema Naturae*, *Fundamenta Botanica*, and *Genera Plantarum*. In 1736 he visited England and France, and returned to Sweden in 1738, when he estab. himself as a physician in Stockholm. In 1741 he became prof. of botany at Uppsala. Besides the work already mentioned he pub. *Bibliotheca Botanica*, 1738, *Critica Botanica*, and *Classes Plantarum*, 1738, *Phytographia Botanica*, 1750, and *Species Plantarum*, 1753. L.'s contributions to natural history, especially botany, are of great importance, although much of his work consists of the summing up of conclusions already

reached by his predecessors, and although his classifications are sometimes at fault, the passion for order which he introduced into natural science, and his terse descriptions, proved of inestimable value to later botanists. His method of classification was based upon the examination of pistils and stamens. First he distinguished the plants without flowers from those which have flowers, redividing the latter according to their special characteristics. To him later naturalists owe the definition of genera and species and the uniform use of generic and specific names (i.e. the binomial system, under which the first name is that of the genus and the second that of the species, e.g. *Homo sapiens*); species named by him are distinguished by the letter L. following the scientific name, as *Bellis perennis* L. His style is a model of brevity and precision, with no possibility of ambiguous meaning; he methodically treated of each organ in its proper turn and used a special term for each, which never varied in meaning. The library and herbarium of L. were purchased by Sir James Edward Smith and transferred to England in 1784; they are now preserved in the rooms of the Linnean Society (founded 1788) at Burlington House, Piccadilly, London. See C. Linné, *Observations on Himself*, 1823; J. V. Carus, *Geschichte der Zoologie*, 1872; J. Sach, *History of Botany*, 1875 (Eng. trans., 1889); W. Junk, *Linné im Lichte neuerer Forschung*, 1925; K. Hagerberg, C. *Linnaeus*, 1939; F. Moulton, J. J. Schifferes, *The Autobiography of Science*, 1945; also lives by D. H. Storer, 1792, and H. P. Malmsten, 1879 (in German), and E. M. Fries (in *English Botanical Year-book*), 1907.

**Linnankoski, Johannes**, see PELTONEN, VIKTORI.

**Linnét**, *Carduelis cannabina*, small bird of the finch family, which is very abundant in Britain, Europe, Asia, and NW. Africa. It received the name L. partly from its partiality for the seed of the flax plant (*Linum*), but it feeds readily on other seeds. The colours red, grey, or brown indicate the sex as well as the seasonal changes. The L. barely measures 6 in. in length, begins to breed in April, and generally chooses some low-lying bush for its home. The eggs, ranging from 4 to 6 in number, are a delicate pale blue streaked with a purplish brown.

**Linnhe**, Loch, inlet (35 m. long and 1-5 m. wide) between the cos. of Inverness-shire and Argyllshire, Scotland, at the head of which stands Fort William. At this point Loch L. joins Loch Eil (lying at right-angles to it), and the Caledonian Canal system begins. Loch L. is divided in two by the Corran Narrows, below which it is entered by Loch Leven. The is. of Eismore lies at the mouth of the inlet.

**Lino-cut**. Lino-cutting is a relief process of printing. High-quality linoleum is mounted on a wood block, and the design cut thereon and transferred to paper by pressure or rubbing, exactly as in woodcuts (q.v.). Lino-cutting is a 20th-cent. development of the printer's art, but

despite being easy to use the process is inferior to woodcut when fine work is required. See A. M. Hind, *A History of Engraving and Etching*, 1923, and M. Dobson, *Block Cutting*, 1928.

**Linolenic Acid** ( $C_{18}H_{32}O_2$ ), organic acid, found in linseed oil and in most seed fats, and partly the cause of the drying properties of that oil.

**Linoleum**, name given to a specific type of floor covering which was invented in 1860 by an Englishman, Frederick Walton. It is a hard-surfaced, pliable floor covering prepared by pressing or calendering a plastic mass in a smooth sheet on to jute canvas or some similar material. The plastic mass is derived initially from linseed oil. Walton observed the rubber-like properties of thick dried paint films and conceived the idea of making a rubber-like product by drying thick films of linseed oil. In his first process, the so-called scrim process, he dissolved lead drier in linseed oil (the lead speeds the drying) and flooded the oil from the roof of a tall building on to sheets of fine cotton material, called scrim, hanging in the building. The oil in this film form dries to a skin. By repeated floodings at daily or more frequent intervals, over a period of sev. months, quite thick skins, sometimes 1 in. in thickness, are built up. The skins are cut down and after a suitable maturing period they are made into 'cement' by heating with resin and gum in a steam-heated vessel. At the correct point the cement is discharged on a cooling floor and cut up. L. composition in various colours is made by mixing the cement so formed with fillers, such as ground cork or wood flour, and colouring material, using conventional mixing machinery such as is used for rubber or plastic compounding. The compound can be obtained in sheet or granulated form and various pattern effects can be obtained by the way the granulated or sheet material is fed to the calender during the process of calendering, or hot pressing the mix on to the jute fabric. After calendering, the L. is given a stoving treatment in warm stoves, and this sometimes lasts for as long as 12 days. The backing may be protected with a paint surface.

L. can be made in various grades and patterns. Thus plain, jaspé, moiré, granite, and marble L.s are common. Alternatively the plain material can be given a pattern effect by printing, using print paints. A special type of L. is that called inlaid. In the square and parquet designs this is made by hand-assembling shaped pieces on the jute fabric prior to entering the calender. Fancy designs can be made on a separate horizontal machine, whereby coloured L. composition in particle form is fed through stencils on to the backing, prior to hot pressing.

Walton can claim to have invented the same product twice. Thus in his alternative process he mechanically oxidised the linseed oil, using steam-heated vessels fitted with strong blades. The oil, heated in the vessel, is churned up by the rotary arms while air is blown through the mass.

The product is discharged just before it becomes semi-liquid, and is then made into cement in the normal way. At the other end of the process he invented an inlaid machine in which sheets of various coloured L. (unbacked) are fed to a rotary machine, when automatic dies cut out a portion of the sheet to press on to the tessian.

The variety of L.s has been much increased since the recent wide development of the plastics industry. The chief centre of L. production in Britain is Kirkcaldy in Fifeshire, but there are other centres in Dundee, in Lancs, and at Staines in Middx.

L. is not to be confused with felt-base floor covering. This is made by printing a design on to a bitumen saturated felt. The hack is given a protective coating too. Felt base is a hard-wearing but quite cheap floor covering (see FLOORCLOTH). See F. Walton, *The Infancy and Development of Linoleum Floorcloths*, 1925.

**Linosa**, see PELAGIAN ISLANDS.

**Linosyris**, family Compositae, genus of perennial herbs, of which *L. vulgaris* (synonym *Chrysocoma linosyris*), Goldilocks, is a rare yellow flower of limestone cliffs in S. Britain.

**Linotype**, see TYPE-CASTING AND TYPE-SETTING MACHINES.

**Linseed**, seed of the flax plant *Linum usitatissimum*, is a shiny brown colour and of a flat oval shape. It contains from 36 to 42 per cent of oil, which is one of the most important for industrial applications. L. oil is obtained by expression or solvent extraction and used in paints, varnishes, linoleum, etc., while the cake or meal residue is used in animal foods. L. is used for poultices, but should never be applied to open wounds. See LINSKED OIL.

**Linseed Oil**, extracted from the seed of the flax plant *Linum usitatissimum*, grown originally for its fibre (linen) but also cultivated on a large scale specially for its seed. Main producing countries are the U.S.A., the Soviet Union, Argentina, India, and Canada. Extraction is by pressing in hydraulic presses or continuous screw presses (expellers) and to a lesser extent by solvent extraction (see OILSEEDS, PROCESSING OF). Linseed contains 36 to 42 per cent of golden-yellow oil which is liquid at ordinary temps. but, when exposed to the air in the form of a thin layer, sets to a dry film, due to the absorption of atmospheric oxygen. The crude oil contains various impurities, including phosphatides, gums, and colouring matter, which can be removed to some degree by refining. Prolonged storage in tanks has been used extensively to allow most to settle out as 'foots' and give a clear oil, but precipitation is now speeded up by the addition of water, and a continuous process with high-speed centrifuges is used for removal of the foots. Although the bulk of phosphatides are removed by these methods, some invariably remain dissolved or in colloidal dispersion in the clear oil and appear as a reddish-brown gelatinous mass called 'heat break' when the oil is heated to about 250° to 260° C. The

'foots-free' oil is thus suitable only for use in products prepared at low temp. or in which colour is not important. If required for high-temp. processing, as in the production of pale varnishes, it must be refined by the addition of an alkali (caustic soda) or acid (sulphuric) which settles out all suspended matter, 'break' and colouring matter. Large quantities of L. O. are also processed to produce 'boiled,' 'blown,' and 'stand' oils of improved drying properties. Boiled oil is produced by blowing the heated oil in the presence of small quantities of 'driers' containing lead, manganese, and/or cobalt, which have the effect of speeding up the oxidation. Blown oil is made by blowing air through it at temps. up to about 150° C. to raise its viscosity to a desired level by a combination of oxidation and polymerisation; and stand oil is prepared by heating refined or 'varnish' oil to 280° to 300° C. and maintaining the temp. until the desired viscosity is obtained. The thickening process by which stand oil is made is generally known as a process of polymerisation. L. O. is produced primarily as a technical oil for use in oil paints and varnishes, printing and lithographic inks, linoleum and oilcloth, and for waterproofing fabrics, etc., but it is also used in limited quantities as an edible oil. Saponified with alkalis, it gives soft soap of a thin character. Main fatty acid constituents are—unsaturated: oleic (13 to 19 per cent), linoleic (17 to 30 per cent), and linolenic (47 to 55 per cent); saturated (8 to 12 per cent). Linseed cake residue from the oil extracting process is used extensively in cattle foods. The seed contains a cyanogenetic glucoside, and an enzyme capable of decomposing it to produce the poisonous hydrocyanic acid, but this enzyme can be destroyed by the high temp. used during processing and the cake is thus rendered harmless.

Linsingen, Alexander Adolf August Karl Klaus Othmar von (1850-1935), Ger. general; b. Hildesheim, Hanover, son of Wilhelm Friedrich Klaus von L. (1815-1889). Entering the infantry in 1868 he saw active service in 1870-1. In various corps he was captain, 1882, major, 1889, and colonel, 1897. He was major-general commanding 81st Infantry Brigade, 1901, lieutenant-general commanding 27th Div., 1905, and general commanding 2nd Army Corps, 1909. In Jan. 1915 he took command of the S. Army, and in July that of the army of the Bug—afterwards amalgamated with a group of armies with which he held back the Russians, 1915-17. In Mar. of 1918 he advanced into Ukraine, and in June was made chief in command of the Mark of Brandenburg.

Lint, material consisting of the fibres of the inner bark of the flax plant, is used for manufacturing the stoutest fabrics as well as the finest cambrics. It is also a special dressing for wounds, consisting of soft, fluffy, untravelled linen cloth.

Linthwaite, see COLNE VALLEY.

Linton, William James (1812-98), wood

engraver, b. London. After some years' experience as journeyman engraver, he entered into partnership with John Orrin Smith in the production of the *Illustrated London News*. He became acquainted with Mazzini (q.v.), the It. revolutionary, whose ideals and theories he eagerly embraced. He started a political jour., the *English Republic*, which proved a financial loss, and he was compelled to try his fortunes abroad. He set up a printing press in America, and wrote valuable treatises on wood-engravings, some verse, and a vol. of memoirs.

Linton, small tn of Cambs, England, on the R. Granta, 11 m. SE. of Cambridge. The par. church is of 12th-cent origin. Barham Hall, how a farmhouse, stands on the site of a priory of Crutched Friars, founded about 1292. Here is L. College, one of the 5 vil. colleges of Cambs, a centre for further education and local community activities. Pop. 1600.

Lintot, Barnaby Bernard (1875-1736), publisher, b. Southwater, Horsham, Sussex. He figured as one of the victims of Pope's attacks in the *Dunciad* and Prologue to the *Satires*. He pub. works of Steele and Gay.

Lintz, see LINZ.

Linum, or Flax, genus of hardy annuals and perennials of the family Linaceae. The toughness of the fibre contained in the slender stems and the oil derived from the seeds make the genus of great economic importance. The Common Flax (*L. usitatissimum*) is not indigenous to Britain, though it is now being cultivated on an increasing scale, but 3 species are true natives: *L. catharticum* (Purging Flax) is a small plant common on dry pastures bearing cymes of small white flowers. *L. anglicum* is occasionally found in chalky places. Its petals are a beautiful but fugacious sky-blue. *L. bienne* has lilac flowers. The perennials are good rockery plants. *L. grandiflorum* and its varieties are rose and scarlet. *L. arboreum*, of shrubby habits, is yellow. For L. in industry see FLAX and LINEN.

Linus, formerly a heroic figure in Gk legend, now typifies a dirge or lamentation. Homer mentions the L. song, and the word is conjectured by some authorities to be derived from the Semitic *al-linā*, 'woe to us.' The ordinary legend treats L. as a youth who has either succumbed to the fury of some god or goddess, or has been subjected to a violent death.

Linyant, see CHORR.

Linz, or Lintz, Austrian tn, cap. of the prov. of Upper Austria, on the Danube. It is the third city of Austria, and is mainly on the r. b. of the riv.; the N. suburb, Urfahr, is on the l. b. It is the seat of a bishopric, and has a fine modern cathedral, sev. Baroque churches, and a Baroque prov. assembly house (Landhaus). Hitler (q.v.) was, as a child, a pupil in a school here. There is a large steel works, and machinery and textiles are manuf. L. was heavily bombed during the Second World War. Pop. 184,700.



